11-18-1999

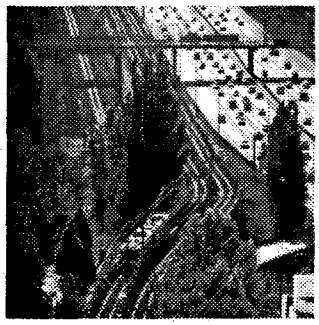
Meeting Notes 1999-11-18 [Part C]

Joint Policy Advisory Committee on Transportation

1999 Regional Transportation Plan

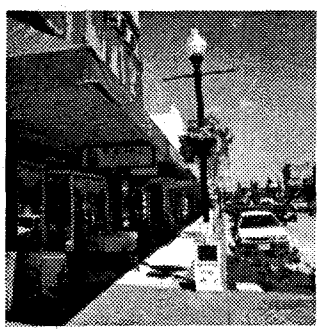
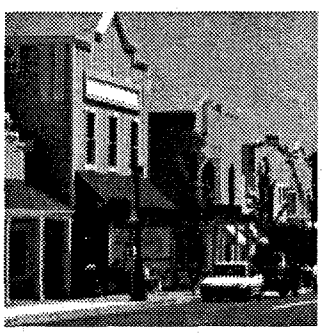
NOVEMBER 5, 1999

Adoption Draft








METRO
Regional Services
Creating livable communities

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November 5, 1999 Adoption Draft

1999 Regional Transportation Plan

What is it?

This final draft of the 1999 Regional Transportation Plan (RTP) is the culmination of nearly four years of work to implement the Region 2040 plan and prepare for expected growth in the region. The draft RTP was reviewed by Metro's Transportation Policy Alternatives Committee, an advisory body that consists of local transportation officials and citizens, and released on November 5, 1999 for formal review and comment.

Next Steps

The public comment period on the draft plan began in October, and is the latest in a series of public involvement efforts related to the RTP update. A series of public comment meetings were held around the region in late October, and a formal hearing before the Metro Council is scheduled for December 2, 1999. All comments received on the plan will be compiled into a public comment report, and will be considered prior to adoption of the draft plan.

The Council is scheduled to tentatively approve a draft RTP by resolution in January 2000, followed by an ordinance that would enact the plan in Spring 2000. Once the resolution has been approved, a number of regulatory issues must be addressed before the ordinance can be approved. Any changes to the RTP that results from these analyses will be incorporated into the final document. These activities include:

- Making findings of compliance with the Oregon Transportation Planning Rule and federal planning requirements set forth in TEA-21
- Developing a "financially constrained" system for the purpose of air quality analysis and conformity findings to demonstrate compliance with federal TEA-21 and Clear Air Act requirements
- Application of the "off-peak" performance standards to the RTP analysis
- Initiating RTP finance discussion with regional policy makers

The Spring 2000 final adoption activities will include additional opportunities to comment on the air quality analysis and other findings from these activities. For more information on the RTP update, visit Metro's web site at www.metro-region.org, or call the Transportation Hotline at (503) 797-1900, or TDD, (503) 797-1804.

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1999 Regional Transportation Plan
November 5, 1999
Adoption Draft

TABLE OF CONTENTS

Metro is still in the process of completing a mapped inventory that compares existing and planned bicycle improvements; these maps will be incorporated into Chapter 3 upon completion

Chapter 6 - Implementation

List of Figures and Tables

Chapter 1 - Regional Transportation Policy

List of Figures

List of Tables

Chapter 2 – Land Use, Growth and Travel Demand

List of Figures

Figure 2.4 RTP Subarea Household Growth 2-12

List of Tables

Chapter 3 – Growth and the Preferred System

List of Figures

List of Tables

Chapter 4 – 2020 Revenue Forecast

List of Figures

Chapter 5 – Growth and the Strategic System

List of Figures

List of Tables

Preface

The 2040 Growth Concept was adopted in 1996, and serves as the blueprint for future growth in the region. The 2040 plan places a new emphasis on focusing new development in existing centers, and protecting farm land from urban expansion. This Regional Transportation Plan (RTP) marks the end of a nearly five-year planning process to begin implementation of the 2040 Growth Concept. As such, the 1999 RTP is the culmination of a nearly 20-year evolution from a mostly road-oriented plan to a more multi-modal one, ultimately mixing land-use and transportation objectives in a truly integrated fashion. The transportation improvements recommended in this plan both respond to expected growth, and leverage key elements of the 2040 Growth Concept.

The 1999 RTP is the result of extensive input from the residents of this region and our state, regional and local government partners. The plan recognizes the diversity of transportation needs throughout the Portland metropolitan region, and attempts to balance often competing transportation needs. This RTP sets the policies, systems and actions to adequately serve walking, bicycling, driving, use of transit and national and international freight movement in this region.

While advocating a transportation system that adequately serves all modes of travel, the plan recognizes that the automobile will likely continue to be the primary mode of personal travel over the life of the plan. The RTP also recognizes that many possibilities exist to limit our need to drive to certain destinations, such as a neighborhood coffee shop or a restaurant near your place of work. The plan, therefore, also stresses the need to plan a transportation system that expands our choices for travel within the region. Even on the occasional basis, the use of transit, walking, bicycling or sharing a ride can help the region maintain its clean air, conserve energy and accommodate more people within a compact urban growth boundary.

Finally, the Regional Transportation Plan recognizes that the transportation system plays a critical role in the continued economic health of the region. Many sectors of the regional economy heavily depend on the safe and efficient movement of goods and services by truck, rail, air and water. Improvements defined in this plan try to balance all of these diverse, and often times competing, needs. The Regional Transportation Plan identifies modal systems and includes a number of strategic investments that aim to:

- limit the amount of congestion motorists experience
- maintain access for national and international rail, air and ship freight to reach its destination with limited travel delay
- balance the need to maintain motor vehicle and freight mobility with the potential impacts of these improvements on our communities and other modes of travel
- expand public transit service and improve pedestrian access to transit
- build new sidewalks and bicycle facilities
- develop system and demand management strategies to improve how the system operates.

Read on to learn more about Metro's commitment to link transportation, land-use and environmental planning for the region in order to protect the community livability we all value.

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Introduction

How to Use this Plan

The Regional Transportation Plan, first adopted by the Metro Council in 1983, is updated every three to five years to reflect changes in the Portland metropolitan region. The process to update the plan was started in 1994. The Metro Council adopted an interim Regional Transportation Plan in 1995 to address new federal requirements. This document is the result of that plan being updated to implement policies identified in the adopted Regional Framework Plan (1997) and the 2040 Growth Concept, to address state planning requirements and to address future transportation needs through the year 2020.

This document marks the end of a nearly five-year process that has included extensive input from the residents of this region and our state, regional and local government partners. The plan is organized into six chapters, and includes an introduction, glossary of terms and an appendix.

The **introduction** provides the federal, state and regional context for the creation of this plan and outlines the overall intent of the plan.

Chapter 1 presents the overall policy framework for the specific transportation policies, objectives and actions contained in the Regional Transportation Plan. This chapter sets a direction for future planning and decision-making by the Metro Council and the implementing agencies, counties and cities.

Chapter 2 describes the expected land uses and travel demand for the year 2020 based on implementation of the 2040 Growth Concept and predicted population and employment growth.

Chapter 3 analyzes the impact of future growth on the preferred system that includes all future projects and programs necessary to meet the goals and objectives established in Chapter 1. This chapter lists all of these improvements grouped by location as defined in the 2040 Growth Concept. The chapter also describes federal congestion management requirements and provides an analysis of how this plan meets these requirements.

Chapter 4 discusses transportation revenue sources and estimated costs for implementation of the preferred system. This chapter also includes a listing of potential new revenue sources that could help address revenue shortfalls.

Chapter 5 analyzes the impact of future growth on the strategic system, which includes the most critical projects and programs needed to keep pace with future growth. This chapter also lists all of these improvements grouped into three phases of implementation – from 2000 to 2005, 2006 to 2010 and 2011 to 2020. The proposed projects are further grouped by location as defined in the 2040 Growth Concept. This chapter also proposes potential funding strategies to implement the strategic system.

Chapter 6 describes the processes through which this plan will be implemented; defines statewide goal and local comprehensive plan compliance procedures; establishes a process to update, refine and amend the RTP; and details outstanding issues that remain unresolved at the time this plan is adopted.

The glossary of terms located at the end of the document includes definitions of many transportation-related planning and engineering terms used throughout the document.

The appendices are located in a separate document. It contains numerous technical documents used to develop this plan and actual findings of compliance with federal, state and regional planning requirements.

Metro's Role in Transportation Planning

Metro is the regional government and federally designated metropolitan planning organization (MPO) for the Portland metropolitan area. Metro is governed by an executive officer elected region wide and a seven-member council elected by districts. Metro's jurisdictional boundary encompasses the urban portions of Multnomah, Washington and Clackamas counties. Today, Metro serves 1.3 million people who live in these three counties and the 24 cities in the Portland metropolitan area. Metro coordinates with the Southwest Washington Regional Transportation Council, the federally designated MPO for the Clark County portion of the metropolitan region.

Regional context

In 1979, the voters in this region created Metro, the only directly elected regional government in the U.S. In 1991, Metro adopted Regional Urban Growth Goals and Objectives (RUGGOs) in response to state planning requirements. Revised in 1995 and acknowledged by the Land Conservation Development Commission in 1996, the RUGGOs establish a process for coordinating planning in the metropolitan region in an effort to preserve regional livability. RUGGOs, including the 2040 Growth Concept, also provide the policy framework for guiding Metro's regional planning program, including development of functional plans and management of the region's urban growth boundary.

In 1992, the voters of the Portland metropolitan area approved a home-rule charter for Metro. The charter identifies specific responsibilities of Metro and gives the agency broad powers to regulate land-use planning throughout the three-county region and to address what the charter identifies as "issues of regional concern." Among these responsibilities, the charter directs Metro to provide transportation and land-use planning services, oversee regional garbage disposal, and recycling and waste reduction programs, develop and operate a regional parks system and operate regional spectator facilities such as the Oregon Zoo, the Oregon Convention Center and the Portland Metropolitan Exposition (Expo) Center.

The charter also directs Metro to develop a Regional Framework Plan that integrates land-use, transportation and other regional planning mandates. In 1995, the Metro Council adopted the 2040 Growth Concept as part of revisions to the RUGGOs adopted in 1991. The 2040 Growth Concept served as the first step in developing the charter-required regional framework plan.

Adopted in December 1997, the Regional Framework Plan is a comprehensive set of policies that integrate land-use, transportation, water, parks and open spaces and other important regional issues. The plan is intended to guide Metro's planning efforts to manage future growth in this region and implement the 2040 Growth Concept. Chapter 2 of the framework plan outlines overall transportation policies for the region for the next 40 years.

State context

In 1991, the Land Conservation and Development Commission adopted the Oregon Transportation Planning Rule (TPR). The TPR is intended to implement State Land Use Planning Goal 12, Transportation, which was adopted by the Oregon Legislature in 1974. The TPR requires most cities and counties and the state's four metropolitan areas to adopt transportation system plans that consider all modes of transportation, energy conservation and avoid principal reliance on any one mode to meet transportation needs. Local plans by state law must be consistent with the regional TSP. Likewise, regional plans must be consistent with the Oregon Transportation Plan, adopted in 1992 by the Oregon Transportation Commission.

In addition, the TPR describes specific elements and analysis that local and regional transportation system plans must address, including consideration of possible land-use solutions to transportation problems and identification of multi-modal, system management and demand management strategies to address identified transportation needs.

Federal context

As a federally designated MPO, Metro must coordinate transportation planning for the Portland metropolitan region, including distribution of federal transportation funds to this region through the Regional Transportation Plan and the Metropolitan Transportation Improvement Program. Adopted in the 1991, the Intermodal Surface Transportation Efficiency Act (ISTEA) was amended in 1998 as the Transportation Equity Act for the 21st Century (TEA-21). These acts expanded public participation in the transportation planning process and required increased cooperation among the jurisdictions that own and operate the region's transportation system. These partners include the region's 24 cities, three counties, Oregon Department of Transportation, Oregon Department of Environmental Quality, Port of Portland, Tri-Met, Washington Regional Transportation Council, Washington Department of Transportation, Southwest Washington Air Pollution Control Authority and other Clark County governments.

Other federal transportation planning requirements also apply to Metro. The federal Clean Air Act Amendments of 1990 establish air quality standards for key air pollutants, including carbon monoxide, ozone and particulate matter. Areas that do not meet the standards are designated in varying degrees of non-attainment from "marginal" to "extreme." If a metropolitan area is designated non-attainment, the state in which the metropolitan area is located must submit an implementation plan that shows how the metropolitan area will meet the federal standards and maintain compliance over a 10-year period. Areas that do not meet the State Implementation Plan requirements could face sanctions, including potential loss of federal highway funds and limits on industrial expansion.

In 1991, the Portland-Vancouver Interstate Air Quality Maintenance Area (AQMA) received a marginal non-attainment designation for ozone and moderate non-attainment designation for carbon monoxide. However, by the end of 1991, the area began to meet federal ozone and carbon monoxide standards on a consistent basis. As a result, this region began to work on 10-year maintenance plans and attainment designation requests for both pollutants. These plans were finalized in 1996 and submitted to the U.S. Environmental Protection Agency (EPA) as revisions to the Oregon State Implementation Plan. EPA approved the maintenance plans and also designated the Portland-Vancouver Interstate AQMA to attainment status in 1997.

Another federal requirement that impacts regional transportation planning is the Endangered Species Act (ESA), a federal regulation that mandates protection and recovery for species in immediate and near-immediate danger of extinction. The 1998 and 1999 listing of Pacific Northwest steelhead, chinook and chum as threatened species under the ESA have placed an additional emphasis on protecting fish and wildlife habitat. The National Marine Fisheries Service (NMFS) is the federal agency charged with the listing and recovery of anadromous fish. An anadromous fish reproduces in fresh water but spends part of the growth cycle in the ocean. Once a species is listed, no person or municipality may "take" individual fish or so disrupt habitat as to "take" an individual fish without a permit. A "take" is any action that harms, threatens, endangers or harasses a species or modifies or degrades that species' habitat. There are often conflicts between good transportation design, planned urbanization and the need to protect streams and wildlife corridors from urban impacts, particularly in urban reserves. Metro and its local, regional, state, and federal partners is in the early states of defining actions to protect these endangered species.

Additional federal transportation requirements include the 1990 Americans with Disabilities Act, which requires that transportation plans address equal access and opportunity for disabled people.

The 2040 Growth Concept

Protecting livable communities

Since adoption of RUGGOs in 1991 and a home-rule charter in 1992, Metro has been involved in a long-range planning process that has included extensive involvement of residents of this region and our state, regional and local government partners. Metro started this planning effort because the region is growing rapidly. Today there are about 100,000 more people living in the three-county region than there were five years ago. By 2017, 470,000 more people are expected to live here.

The purpose of this effort has been to develop a plan for protecting livable communities based on the values expressed by people in this region – such as clean air and water, access to nature, safe and stable neighborhoods, the ability to get around the region and a strong regional economy.

Evaluating options

The 2040 planning process also has included an evaluation of how different land-use and transportation strategies could help us preserve livability in this region. The possible consequences of such strategies were analyzed, including their impact on operation of the region's transportation system. The regional strategy that evolved from this process is called the 2040 Growth Concept, which integrates land-use and transportation planning and curbs sprawl.

Adopted in 1995 as part of the RUGGOs, the 2040 Growth Concept directs most development to centers and along existing major transportation corridors. It relies on a balanced transportation system that adequately serves walking, bicycling, driving, transit and national and international freight movement. Building neighborhoods and communities to focus new jobs, housing and services in these centers and corridors provides many benefits and has important implications for the region's transportation system.

The 2040 Growth Concept can be summarized by the following components:

- centers and corridors with an emphasis on higher development densities, mixed land uses, ease of traveling by transit, bicycling and walking, parking limit and streets designed for people, not just cars
- neighborhoods that will remain largely residential in nature, and change very little from today
- industrial areas and marine, rail and air cargo terminals that serve as the hub for regional commerce
- environmentally sensitive areas that need special protections

Growing smart

Using urban land wisely allows for more cost-effective and efficient provision of road, sewer, water and stormwater systems. Our technical analysis showed that without the 2040 Growth Concept, the region's urban growth boundary would need to be expanded by about 50 percent to accommodate predicted housing and employment growth. This would result in the need for costly extensions of existing transportation and utility systems.

Reducing the need to drive

The 2040 Growth Concept also supports the region's goal of providing jobs and shopping closer to where people live. A diverse and well-designed community provides access to a variety of jobs, shopping and other services from home and reduces the need to drive longer distances.

Expanding transportation choices

More people will walk, take a bus or ride a bike if our transportation system provides safe and convenient opportunities to do so. Focusing new jobs and housing close to restaurants, stores and services makes walking, bicycling and riding public transportation convenient. These travel options allow people who cannot drive, or who choose not to drive, to get where they need to go. Finally, more households may choose not to own a car, or decline a second car, if there are a number of travel options. Money could be saved that would otherwise be spent on car payments, fuel, insurance and maintenance.

Avoiding sprawl

For all these reasons and to reduce sprawl, the 2040 Growth Concept encourages effective use of our land. The concept uses transportation investments to encourage economic activity in preferred areas where the region decides future development should occur.

Keeping the economy strong

The region's transportation system plays a critical role in the continued economic health and livability of this region. When planning for how and where development should occur in this region, consideration must be given to existing and future transportation needs. Experience has shown that economic vitality occurs in those areas with the best access. Therefore, it is important that the Regional Transportation Plan strategically invest transportation funds to improve access to and through the areas that need it (e.g.,

central city, regional centers, industrial areas and facilities where goods move from one transportation mode to another). This means targeting investments in a manner that serves areas where the region has decided future development should occur as part of implementation of the 2040 Growth Concept.

The Regional Transportation Plan

The Regional Transportation Plan is a 20-year blueprint for the Portland metropolitan region's transportation system. The plan deals with how best to move people and goods in and through the region. There are many transportation needs in this region:

- limit the amount of congestion motorists experience, and provide alternatives to avoid congestion
- build new sidewalks and bicycle facilities
- expand transit service and improve pedestrian access to transit
- maintain access for national and international rail, air and marine freight to reach its destination with limited delay

One of Metro's goals is to provide a balanced range of transportation choices for the movement of people and goods in this region. The plan sets transportation policies for all forms of travel: motor vehicle, transit, pedestrian, bicycle and freight. The plan includes specific objectives, strategies and projects to guide local and regional implementation of each policy.

Why does the RTP matter?

As this region grows, additional demands are placed on the existing transportation system. The RTP matters because it defines regional policies that all city, county, Tri-Met, Oregon Department of Transportation and Port of Portland transportation plans must follow. It identifies transportation projects and programs throughout the region for the next 20 years to implement the region's 2040 Growth Concept and addresses the impacts of future growth on our transportation system. The plan must also meet federal and state requirements. A transportation project is eligible for state and federal transportation funds distributed through Metro if it is included in the adopted RTP and is consistent with federal air quality standards.

Choices made today about how to serve future growth in this region will have lasting impacts on our quality of life. The Regional Transportation Plan is just one part of Metro's overall strategy to protect the community livability we all value.

Chapter 1

Regional Transportation Policy

CHAPTER 1

Regional Transportation Policy

1.0 Introduction

This chapter presents the overall policy framework for specific transportation policies, objectives and actions identified throughout this plan. It also sets a direction for future planning and decision-making by the Metro Council and the implementing agencies, counties and cities. A 21-member Regional Transportation Plan citizen advisory committee guided development of this chapter. The committee was appointed by the Metro Council in May 1995 to develop regional transportation policies and propose transportation solutions as part of the update to the 1992 Regional Transportation Plan. The group met monthly until January 1998. The culmination of the group's work can be found in policies in this chapter and in the guiding principles developed for use in updating the other chapters of this plan. This chapter is organized as follows:

Regional Transportation Vision: This section establishes the basic mission of the plan as a means for implementing the 2040 Growth Concept.

Connecting Land-use and Transportation: This section identifies the individual transportation needs for each 2040 Growth Concept land use component and the relative importance of each component to the region.

Regional Transportation Policies: This section provides specific policies and supporting objectives regarding the design, function and performance of the regional transportation system. As a whole, these policies form the basis for improvements recommended in Chapters 3 and 5 of this plan. The objectives establish how a particular policy will be implemented. Motor vehicle performance measures will be used to make a determination of whether the proposed transportation system is adequate to serve planned land uses during the 20-year plan period.

1.1 Regional Transportation Vision

Adoption of the 2040 Growth Concept established a new direction for planning in the Portland metropolitan region by linking urban form to transportation. This new direction reflects a regional commitment to developing a plan that is based on efficient use of land and a safe, cost-effective and efficient transportation system that supports the land uses in the 2040 Growth Concept and serves all forms of travel.

The unifying theme of the 2040 Growth Concept is to preserve the region's livability while planning for expected growth in this region – a principle that calls for a regional transportation system designed to meet the specific needs of each 2040 Growth Concept land use component. This Regional Transportation Plan seeks to protect the region's livability by defining a transportation system that:

- anticipates the region's current and future travel needs
- accommodates an appropriate mix of all forms of travel

- supports key elements of the 2040 Growth Concept through strategic investments in the region's transportation system

1.2 Connecting Land Use and Transportation

While the 2040 Growth Concept is primarily a land use planning strategy, the success of the concept, in large part, hinges on implementation of regional transportation policies identified in this plan. The following are descriptions of each of the 2040 Growth Concept land-use components and the transportation system envisioned to serve them. The 2040 Growth Concept land-use components, called 2040 Design Types, are grouped into a hierarchy based on investment priority. Figure 1.0 shows the adopted Region 2040 Growth Concept Map.

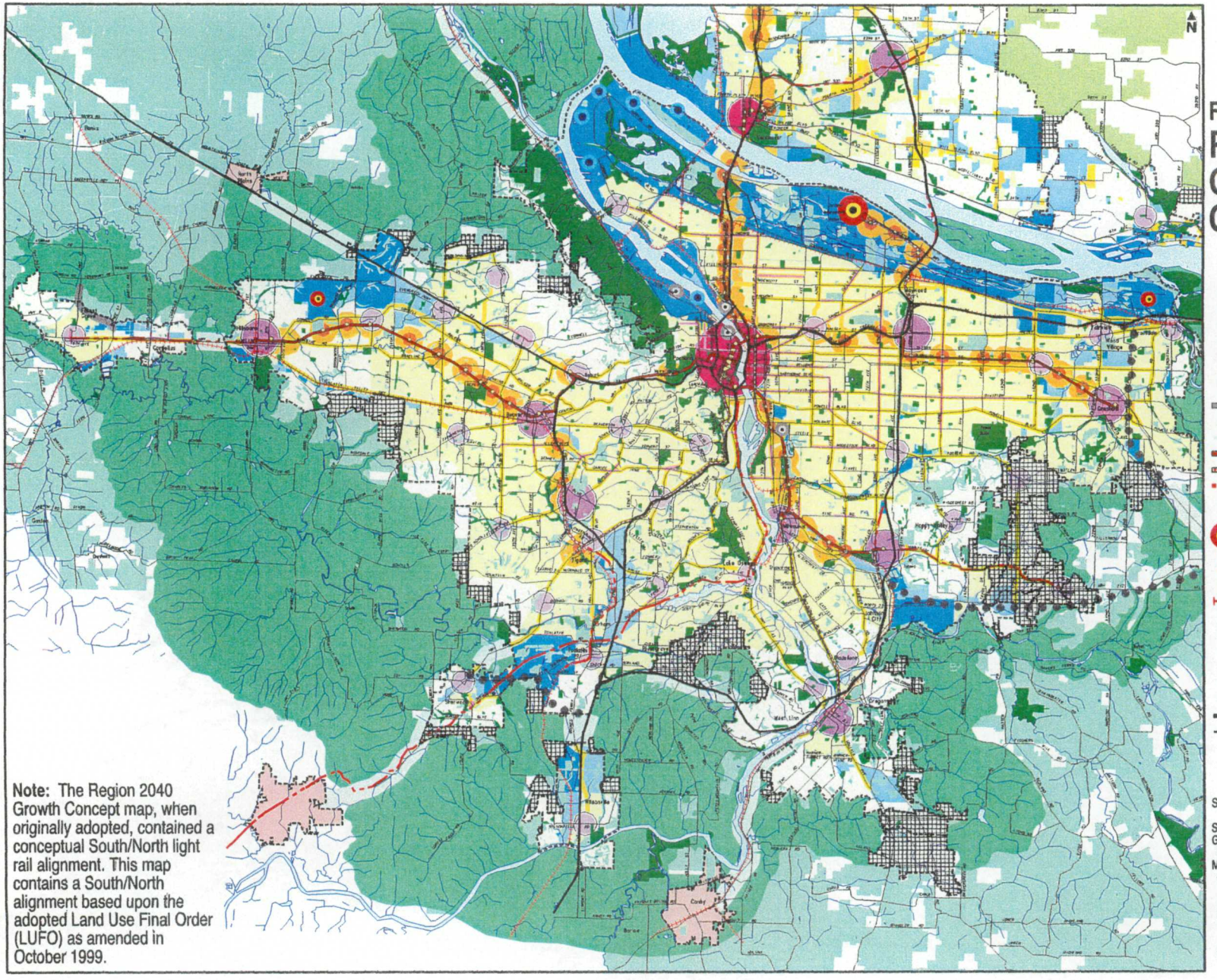
1.2.1 Primary Components

The central city, regional centers, industrial areas and intermodal facilities are centerpieces of the 2040 Growth Concept, and form the geographic framework for more locally oriented components of the plan. Implementation of the overall growth concept is largely dependent on the success of these primary components. For this reason, these components are the primary focus of 2040 Growth Concept implementation policies and most infrastructure investments.

Central city and regional centers
Portland's central city already forms the hub of the regional economy. Regional centers in suburban locales such as Gresham, Beaverton and Hillsboro are envisioned in the 2040 Growth Concept as complementary centers of regional economic activity. These areas have the region's highest development densities, the most diverse mix of land uses and the greatest concentration of commerce, offices and cultural amenities. They are the most accessible areas in the region by both auto and public transportation, and have very pedestrian-oriented streets.

In the 2040 Growth Concept, the central city is highly accessible by a high-quality public transportation system, multi-modal street network and a regional freeway system of through-routes. Light rail lines radiate from the central city, connecting to each regional center. The street system within the central city is designed to encourage public transportation, bicycle and pedestrian travel, but also accommodate auto and freight movement. Of special importance are the bridges that connect the east and west sides of the central city, and serve as critical links in the regional transportation system.

Regional centers also feature a high-quality radial transit system serving their individual trade areas and connecting to other centers, as well as light rail connections to the central city. In addition, a fully improved network of multi-modal streets tie regional centers to surrounding neighborhoods and nearby town centers, while regional through-routes will be designed to connect regional centers with one another and to points outside the region. The street design within regional centers encourages public transportation, bicycle and pedestrian travel while also accommodating automobile and freight movement.



Note: The Region 2040 Growth Concept map, when originally adopted, contained a conceptual South/North light rail alignment. This map contains a South/North alignment based upon the adopted Land Use Final Order (LUFO) as amended in October 1999.

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Figure 1.0
Region 2040 Growth Concept

- Central City
- Regional Centers
- Town Centers
- Inner Neighborhoods
- Outer Neighborhoods
- Employment Areas
- Industrial Areas
- Corridors
- Main Streets
- Proposed Regional Throughways
- Potential Regional Throughways
- Green Corridors
- Planned & Existing Light Rail Line
- Proposed Light Rail Alignments
- Potential HCT Facilities
- Light Rail Stations
- Potential Light Rail Stations
- International Airports
- Regional Airports
- Terminals
- Intermodal Rail Yards
- Rail Distribution Network
- Exclusive Farm Use
- Exception Land in Urban Reserve
- Resource Land in Urban Reserve
- Urban Reserves
- Rural Reserves
- Open Space
- Urban Growth Boundary
- Urban Reserve Boundaries
- Neighboring Cities
- Public Parks

SOURCES:

STREET NETWORK
Graphic source:
RLIS tax lot map, 1997
Map accuracy and data collection scale:
Cities of Beaverton, Milwaukie, Oregon City and Tigard: control point positional accuracy is plus or minus five feet or better, 1" = 100'
Multnomah County East of 42nd Ave: based on existing control points. Line work entered using coordinate geometry.
Remainder of region: control point positional accuracy is plus or minus ten feet, 1" = 100', 1" = 200' or 1" = 400'
Data source:
U.S. Bureau of the Census TIGER Line File 1990, county address records, Thomas Bros. Maps Inc, Portland Bureau of Emergency Communications, Washington County Consolidated Communications Agency.

October 1999

Industrial areas and intermodal facilities
Industrial areas serve as "sanctuaries" for long-term industrial activity. A network of major street connections to both the regional freeway system and intermodal facilities primarily serves these areas. Many industrial areas are also served by freight rail, and have good access to intermodal facilities. Freight intermodal facilities, including air and marine terminals, freight rail yards and common carrier truck terminals are areas of regional concern. Access to these areas is centered on rail, the regional freeway system, public transportation, bikeways and key roadway connections.

While industrial activities often benefit from roadway improvements largely aimed at auto travel, there are roadway needs unique to freight movement that are critical to the continued vitality of industrial areas and intermodal facilities.

1.2.2 Secondary components

While more locally oriented than the primary components of the 2040 Growth Concept, town centers, station communities, main streets and corridors are significant areas of urban activity. Because of their density and pedestrian-oriented design, they play a key role in promoting public transportation, bicycling and walking as viable travel alternatives to the automobile, as well as conveniently close services from surrounding neighborhoods. As such, these secondary components are an important part of the region's strategy for achieving state goals to limit reliance on any one mode of travel and increase walking, bicycling, ridesharing and use of transit.

Station communities
Station communities are located along light rail corridors and feature a high-quality pedestrian and bicycle environment. These communities are designed around the transportation system to best benefit from the public infrastructure. While they include some local services and employment, they are mostly residential developments that are oriented toward the central city, regional centers and other areas that can be accessed by rail for most services and employment.

Town centers and main streets
Town centers function as local activity areas that provide close access to a full range of local retail and service offerings within a few miles of most residents. While town centers will not compete with regional centers in scale or economic diversity, they will offer some specialty attractions of regional interest. Although the character of these centers varies greatly, each will function as strong business and civic communities with excellent multi-modal arterial street access and high-quality public transportation with strong connections to regional centers and other major destinations. Main streets feature mixed-use storefront style development that serves the same urban function as town centers, but are located in a linear pattern along a limited number of bus corridors. Main streets feature street designs that emphasize pedestrian, public transportation and bicycle travel.

Corridors
Corridors will not be as intensively planned as station communities, but similarly emphasize a high-quality bicycle and pedestrian environment and convenient access to public transportation. Transportation improvements in corridors will focus on nodes of activity – often at major street intersections – where transit and pedestrian improvements are especially important. Corridors

can include auto-oriented land uses between nodes of activity, but such uses are carefully planned to preserve the pedestrian orientation and scale of the overall corridor design.

1.2.3 Other urban components

Some components of the 2040 Growth Concept are primarily of local significance, including employment centers and neighborhoods. Urban activities in these areas often impact the regional transportation system, but are best addressed through the local planning process.

Employment centers

Employment centers allow mixed commercial and industrial uses, including some residential development. A network of arterial street connections to both the regional freeway system and intermodal facilities primarily serves these areas. Some employment centers also are served by freight rail. Employment centers often are located near industrial areas, and may benefit from freight improvements primarily directed toward industrial areas and intermodal facilities.

Neighborhoods

In recent decades, neighborhoods have become more congested largely due to a lack of street connections. A lack of street connections discourages walking and bicycling for local trips in these areas, and forces local auto trips onto the regional multi-modal arterial network. The 2040 Growth Concept envisions master street plans in all areas to increase the number of local street connections to the regional roadway network. However, new connections must be designed to discourage through-travel on local neighborhood streets.

1.2.4 Components outside the urban area

The remaining components of the 2040 Growth Concept are located outside the urban growth boundary.

Urban reserves

These reserves, which are currently located outside the urban growth boundary, are relatively undeveloped, with limited transportation facilities. Urban reserves are intended to accommodate future growth and will eventually require multi-modal access to the rest of the region. General street and public transportation planning is completed prior to urbanization as part of the RTP process, and is based on specific 2040 Growth Concept land use policies for these areas. Once urban reserves are brought within the urban growth boundary, more detailed transportation system planning at the regional and local level occurs in conjunction with detailed land-use planning.

Rural reserves

These largely undeveloped reserves are also located outside the urban growth boundary and have very limited transportation facilities. Roadways in these areas are intended to serve rural industry and needs, and urban travel on these routes is accommodated with designs that are sensitive to their basic rural function. Rural reserves will be protected from urbanization for the foreseeable future through state statutes and administrative rules, county land-use ordinances, intergovernmental agreements and by limiting rural access to urban through-routes when possible. Urban-to-urban travel is generally discouraged on most rural routes, with exceptions identified in this plan.

Neighboring cities and green corridors
Neighboring cities are separated from the main urban area by rural reserves, but are connected to regional centers within the metropolitan area by limited-access green corridor transportation routes. Green corridor routes will include bicycle and public transportation service to neighboring cities. Neighboring cities will be encouraged through intergovernmental agreements to balance jobs and households in order to limit travel demand on these connectors. The region also has an interest in maintaining reasonable levels of through-travel on major routes that pass through neighbor cities and function as freight corridors. Growth in neighboring cities will ultimately impact through-travel and could create a need for bypass routes. Such impacts also will be addressed through coordination with county and state agencies, as well as individual neighboring cities.

1.3 Regional Transportation Policies

The following section contains the regional policies for transportation. The policies are grouped into seven subject areas: public process, connecting land use, equal access and safety, protecting the environment, designing the transportation system, managing the transportation system and implementing the transportation system. In most cases, objectives follow each policy statement. The objectives identify how a particular policy will be implemented. A motor vehicle performance measure will be used to track implementation of these policies.

The policies aim to implement the 2040 Growth Concept and:

- protect the economic health and livability of the region
- improve the safety of the transportation system
- provide a transportation system that is efficient and cost-effective, investing our limited resources wisely
- provide access to more and better choices for travel in this region and serve special access needs for all people, including youth, elderly and disabled
- provide adequate levels of mobility for people and goods within the region
- protect air and water quality and promote energy conservation
- provide transportation facilities that support a balance of jobs and housing
- limit dependence on any single mode of travel and increase the use of transit, bicycling, walking and ridesharing
- provide for the movement of people and goods through an interconnected system of highway, air, marine and rail systems, including passenger and freight intermodal facilities and air and water terminals

- integrate land use, automobile, bicycle, pedestrian, freight and public transportation needs in regional and local street designs
- use transportation demand management and system management strategies
- limit the impact of urban travel on rural land through use of green corridors.

Figure 1.1 provides a complete listing of all policies identified in this chapter.

Figure 1.1
Regional Transportation Policies

Policy 1.0. Public Involvement
Provide complete information, timely public notice, full public access to key decisions and support broad-based, early and continuing involvement of the public in all aspects of the transportation planning process that is consistent with Metro's adopted local public involvement policy for transportation planning. This includes involving those traditionally under-served by the existing system, those traditionally under-represented in the transportation process, the general public, and local, regional and state jurisdictions that own and operate the region's transportation system.

Policy 2.0. Intergovernmental Coordination
Coordinate among the local, regional and state jurisdictions that own and operate the region's transportation system to better provide for state and regional transportation needs.

Policy 3.0. Urban Form
Facilitate implementation of the 2040 Growth Concept with specific strategies that address mobility and accessibility needs and use transportation investments to leverage the 2040 Growth Concept.

Policy 4.0. Consistency Between Land-use and Transportation Planning
Ensure the identified function, design, capacity and level of service of transportation facilities are consistent with applicable regional land use and transportation policies as well as the adjacent land-use patterns.

Policy 5.0. Barrier-Free Transportation
Provide access to more and better transportation choices for travel throughout the region and serve special access needs for all people, including youth, elderly and disabled.

Policy 6.0. Transportation Safety and Education
Improve the safety of the transportation system. Encourage bicyclists, motorists and pedestrians to share the road safely.

Policy 7.0. The Natural Environment
Protect the region's natural environment.

Policy 8.0. Water Quality
Protect the region's water quality.

Policy 9.0. Clean Air
Protect and enhance air quality so that as growth occurs, human health and visibility of the Cascades and the Coast Range from within the region is maintained.

Policy 10.0. Energy Efficiency
Design transportation systems that promote efficient use of energy.

Policy 11.0. Regional Street Design
Design regional streets with a modal orientation that reflects the function and character of surrounding land uses, consistent with regional street design concepts.

Policy 12.0. Local Street Design
Design local street systems to complement planned land uses and to reduce dependence on major streets for local circulation, consistent with Section 6.4.5 in Chapter 6 of this plan.

Policy 13.0. Regional Motor Vehicle System
Provide a regional motor vehicle system of arterials and collectors that connect the central city, regional centers, industrial areas and intermodal facilities, and other regional destinations, and provide mobility within and through the region.

Policy 14.0. Regional Public Transportation System
Provide an appropriate level, quality and range of public transportation options to serve this region and support implementation of the 2040 Growth Concept, consistent with Figure 1.10.

Policy 14.1. Regional Public Transportation System
Expand the amount of information available about public transportation to allow more people to use the system.

Policy 14.2. Regional Public Transportation System
Continue efforts to make public transportation an environmentally-friendly and safe form of motorized transportation.

Policy 15.0. Regional Freight System
Provide efficient, cost-effective and safe movement of freight in and through the region.

Policy 15.1. Regional Freight System
Protect and enhance public and private investments in the freight network.

Policy 16.0. Regional Bicycle System
Provide a continuous regional network of safe and convenient bikeways connected to other transportation modes and local bikeway systems, consistent with regional street design guidelines.

Policy 16.1. Regional Bicycle System
Increase the bicycle mode share throughout the region and improve bicycle access to the region's public transportation system.

Policy 17.0. Regional Pedestrian System
Design the pedestrian environment to be safe, convenient, attractive and accessible for all users.

Policy 17.1. Regional Pedestrian System
Increase walking for short trips and improve pedestrian access to the region's public transportation system through pedestrian improvements and changes in land-use patterns, designs and densities.

Policy 17.2. Regional Pedestrian System
Provide pedestrian access, appropriate to existing and planned land uses, street design classification and public transportation, as a part of all transportation projects.

Policy 18.0. Transportation System Management
Use transportation system management techniques to optimize performance of the region's transportation systems. Mobility will be emphasized on corridor segments between 2040 Growth Concept primary land-use components. Access and livability will be emphasized within such designations. Selection of appropriate transportation system techniques will be according to the functional classification of corridor segments.

Policy 19.0. Regional Transportation Demand Management
Enhance mobility and support the use of alternative transportation modes by improving regional accessibility to public transportation, carpooling, telecommuting, bicycling and walking options.

Policy 19.1. Regional Parking Management
Manage and optimize the efficient use of public and commercial parking in the central city, regional centers, town centers, main streets and employment centers to support the 2040 Growth Concept and related RTP policies and objectives.

Policy 19.2 Peak Period Pricing
Manage and optimize the use of highways in the region to reduce congestion, improve mobility and maintain accessibility within limited financial resources.

Policy 20.0. Transportation Funding
Ensure that the allocation of fiscal resources is driven by both land use and transportation benefits.

Policy 20.1. 2040 Growth Concept Implementation
Implement a regional transportation system that supports the 2040 Growth Concept through the selection of complementary transportation projects and programs.

Policy 20.2. Transportation System Maintenance and Preservation
Emphasize the maintenance, preservation and effective use of transportation infrastructure in the selection of the RTP projects and programs.

Policy 20.3. Transportation Safety
Anticipate and address system deficiencies that threaten the safety of the traveling public in the implementation of the RTP.

1.3.1 Public Process

Policy 1.0. Public Involvement
Provide complete information, timely public notice, full public access to key decisions and support broad-based, early and continuing involvement of the public in all aspects of the transportation planning process that is consistent with Metro's adopted local public involvement policy for transportation planning. This includes involving those traditionally under-served by the existing system, those traditionally under-represented in the transportation process, the general public, and local, regional and state jurisdictions that own and operate the region's transportation system.

a. Objective: Develop a detailed public involvement work plan consistent with the regional public involvement policy for each transportation plan, program or project.
b. Objective: Provide opportunities for the public to supply input. Revise work scopes, plans and programs to reflect public comment, as appropriate. Create a record of public comment received and agency response regarding draft transportation plans and programs at the regional level.

Metro's public involvement policy for regional transportation planning and funding activities is intended to support and encourage broad-based public participation in the development and review of Metro's transportation plans, programs and projects. The policy was developed in response to citizen interest, recent changes in state and federal transportation planning requirements, and in an effort to reach traditionally under-served portions of the population. The Metro Council adopted the public involvement policy in July 1995. Workshops, public meetings, hearings, open houses, mailings, flyers, surveys and paid advertising all are used to seek input from citizens. Metro coordinates input from the public and our local, regional, state and federal planning partners through several committees (see Policy 2.0 discussion).

Policy 2.0. Intergovernmental Coordination
Coordinate among the local, regional and state jurisdictions that own and operate the region's transportation system to better provide for state and regional transportation needs.

Metro's transportation planning activities also are guided by a decision-making framework that integrates federal, state, regional and local government staff and interested groups into the transportation and land-use decision-making processes of the region. Metro's job is to make sure that local planning is coordinated throughout the region, consistent with federal, state and regional requirements. Metro's planning partners include the cities and counties of the region, Oregon Department of Transportation (ODOT), Oregon Department of Environmental Quality, Port of Portland and Tri-Met. Metro also coordinates with Southwest Washington Regional Transportation Council (RTC), C-Tran, the Washington Department of Transportation, the Southwest Washington Air Pollution Control Authority and other Clark County governments on bi-state issues.

By providing regional coordination amongst the planning partners and setting regional standards, cities and counties can better coordinate their planning efforts with neighboring jurisdictions – and this benefits the entire region. Metro facilitates this coordination through three decision-making bodies – the Metro Council, the Joint Policy Advisory Committee on Transportation (JPACT) and Transportation Policy Alternatives Committee (TPAC). Figure 1.2 displays the regional decision-making process.

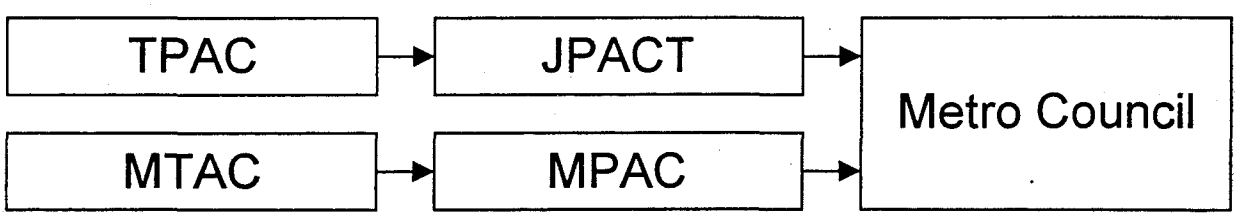
Metro Council. The seven members of the Metro Council are elected from districts throughout the region. The Council approves Metro policies, including transportation plans recommended by JPACT. The Metro Council, in making policy decisions and approving transportation plans, relies on JPACT and the Metro Policy Advisory Committee (MPAC) for input. JPACT and MPAC, in turn, rely on technical expertise and input from TPAC and the Metro Technical Advisory Committee (MTAC).

JPACT. The Joint Policy Advisory Committee on Transportation provides a forum for elected officials and representatives of agencies involved in transportation planning to evaluate transportation policies and make recommendations on projects to implement those policies. This 17-member committee makes funding recommendations to the Metro Council. The committee includes elected officials from local governments within the region, three Metro councilors, representatives from ODOT, Tri-Met, the Port of Portland, plus representatives from governments and agencies of Clark County, Wash., and the state of Washington. The JPACT finance subcommittee also meets to develop and recommend financing strategies to implement the region's transportation policies.

TPAC. The Transportation Policy Alternatives Committee provides technical input into the planning process and makes recommendations to JPACT. TPAC membership includes senior technical staff from cities and counties in the region, ODOT, Tri-Met, the Port of Portland, the Washington Department of Transportation, Federal Highway Administration, Oregon Department of Environmental Quality and the Southwest Washington Regional Transportation Council. There are also six citizen representatives with strong public involvement skills and diverse backgrounds appointed to TPAC by the Metro Council.

RTP Citizen Advisory Committee. In addition, the 21-member RTP Citizen Advisory Committee was appointed by the Metro Council in May 1995 to provide citizen perspectives on transportation issues during the RTP update. Members of the committee were selected as delegates for specific constituencies, to represent various citizen, demographic, business and special interest perspectives. The committee provided direct input to all of Metro's working committees and to the Metro Council.

Figure 1.2
Regional Decision-Making Process



Source: Metro

1.3.2 Connecting Land Use

Policy 3.0. Urban Form
Facilitate implementation of the 2040 Growth Concept with specific strategies that address mobility and accessibility needs and use transportation investments to leverage the 2040 Growth Concept.

a. Objective: Serve new development with interconnected public streets that provide safe and convenient pedestrian, bicycle and motor vehicle access.
b. Objective: Provide street, bicycle and pedestrian connections to transit routes within and between new and existing residential, commercial and employment areas and other activity centers.
c. Objective: Encourage development that supports increased mobility and accessibility, particularly by transit, walking and bicycling.

Policy 4.0. Consistency Between Land-use and Transportation Planning
Ensure the identified function, design, capacity and level of service of transportation facilities are consistent with applicable regional land use and transportation policies as well as the adjacent land use patterns.

a. Objective: Provide transportation facilities that support a land use plan that balances jobs and housing as well as the community identity of neighboring cities.

1.3.3 Equal Access and Safety

Policy 5.0. Barrier-Free Transportation
Provide access to more and better transportation choices for travel throughout the region and serve special access needs for all people, including youth, elderly and disabled.

a. Objective: Continue to work with local, regional and state jurisdictions to provide transportation facilities that comply with the Americans with Disabilities Act of 1990.
b. Objective: Continue to work with local, regional and state jurisdictions to identify and assess structural barriers to mobility for transportation disadvantaged populations in current and planned regional transportation system and address through a comprehensive program.
c. Objective: Continue to work with local, regional and state jurisdictions to make public transportation stops and walkway approaches accessible.

Policy 6.0. Transportation Safety and Education
Improve the safety of the transportation system. Encourage bicyclists, motorists and pedestrians to share the road safely.

a. Objective: Promote safety in the design and operation of the transportation system.
b. Objective: Minimize conflicts between modes, particularly between motor vehicles, freight, transit, pedestrians and bicycles.
c. Objective: Develop and implement regional safety and education programs. Coordinate regional efforts to promote safe use of roadways by motorists, bicyclists and pedestrians through a public awareness program.
d. Objective: Provide region-wide coverage of local traffic education programs, and actively distribute safety information to local jurisdictions, law enforcement agencies, schools and community organizations that informs and educates motorists, bicyclists and pedestrians.

1.3.4 Protecting the Environment

Policy 7.0. The Natural Environment
Protect the region's natural environment.
a. Objective: Place a priority on protecting the natural environment in all aspects of the transportation planning process.
b. Objective: Reduce the environmental impacts associated with transportation planning, project construction and maintenance activities.
c. Objective: Reduce negative impacts on parks, public open space, natural areas, wetlands and rural reserves arising from noise, visual impacts and physical segmentation.

Policy 8.0. Water Quality
Protect the region's water quality.
a. Objective: Meet applicable state and federal water quality standards in the planning process.
b. Objective: Support local jurisdiction efforts to reduce impervious surface coverage in the development review and street design process.
c. Objective: Comply with the Governor's fish initiative and federal requirements related to endangered species listings.

Ecosystems do not conform to political boundaries. Streams and watersheds cross both city and county boundaries, and transportation projects often impact watersheds. In recent years, it has become increasingly important to acknowledge the effect of developing the public right-of-way on the health of our environment, particularly urban waterways. Streets and driveways combine to form the largest source of impervious surfaces in our urban landscape. A particular challenge is how to address conflicts between planned transportation improvements and identified stream corridors, and how transportation improvements can be constructed in concert with stream corridor protection plans.

Impervious surfaces are hard surfaces that do not allow water to soak into the ground, and increase the amount of stormwater running off into the stormwater drainage system. The majority of total impervious surfaces are from roads, sidewalks, parking lots and driveways. Stormwater runoff from these impervious surfaces reduces the amount of recharge of water to ground water and increases the capacity requirements of the storm water drainage system.

Higher impervious surface coverage has been linked to dramatic changes in the shape of streams, water quality, water temperature and the health of the flora and fauna that live in the natural waterways. Examples of impervious surface reduction techniques that could be used by local jurisdictions in the development review and street design process include:

- consider use of open channels and swales on smaller streets and roads, as long as runoff velocities are low enough to prevent erosion
- grade sidewalks so that stormwater runs off into adjacent unpaved areas such as planting strips or landscaped private property
- encourage the use of shared parking to reduce the size and number of parking lots

- consider reducing commercial, industrial and multi-family use parking requirements to reduce impervious surface coverage

- encourage shared driveways between adjacent development projects

- follow guidelines for erosion control techniques during construction of regional streets and adjacent development projects.

Policy 9.0. Clean Air
Protect and enhance air quality so that as growth occurs, human health and visibility of the Cascades and the Coast Range from within the region is maintained.
a. Objective: Encourage use of all modes of travel (e.g., transit, telecommuting, zero-emissions vehicles, ridesharing, bicycles and walking) that contribute to clean air.
b. Objective: Include strategies for planning and managing air quality in the regional airshed in the State Implementation Plan for the Portland-Vancouver air quality maintenance areas as required by the federal Clean Air Act Amendments.
c. Objective: Develop new regional strategies to comply with federal Clean Air Act Amendments requirements and provide capacity for future growth.
d. Objective: Work with the state to pursue close collaboration of the Oregon and Clark County Air Quality Management Areas.
e. Objective: Provide regional support for implementation of the voluntary parking provisions of the Portland region's Ozone Maintenance Plan.
f. Objective: Ensure timely implementation and adequate funding for Transportation Control Measures as identified in the State Implementation Plan.

Policy 10.0. Energy Efficiency
Design transportation systems that promote efficient use of energy.
a. Objective: Reduce the region's transportation-related energy consumption through increased use of transit, telecommuting, zero-emissions vehicles, ridesharing, bicycles and walking and through increasing efficiency of the transportation network to diminish delay and corresponding fuel consumption.

1.3.5 Designing the Transportation System

The design and function of individual transportation facilities and entire systems have a significant impact on adjacent land uses and the character of the communities they serve. As a result, transportation systems planning must consider larger regional and community goals and values, such as protection of the environment, the regional economy and the quality of life that area residents presently enjoy.

The Regional Transportation Plan measures economic and quality-of-life impacts of the proposed system by evaluating key indicators, such as access to jobs and retail services, mode share, vehicle miles traveled, travel times, travel speeds, level of congestion and air quality impacts. Other key indicators include economic benefits to the community, transportation for the traditionally underserved, including low-income and minority households and the disabled, energy costs and protection of natural resources. The Regional Transportation Plan defines a transportation system that balances all of the policies in this plan. Sometimes these policies are in conflict – so each transportation project or program must be evaluated in

terms of financial constraints, associated social, economic and environmental impacts, and how it best achieves an overall balance between those conflicting goals.

The following policies guide planning and implementation of the region's transportation system.

Policy 11.0. Regional Street Design
Design regional streets with a modal orientation that reflects the function and character of surrounding land uses, consistent with regional street design concepts.
a. Objective: Support local implementation of regional street design concepts in local transportation system plans.

Regional street design policies address federal, state and regional transportation planning mandates with street design concepts intended to support local implementation of the 2040 Growth Concept. The design concepts reflect the fact that streets perform many, often conflicting functions, and the need to reconcile conflicts among travel modes to make the transportation system safer for all modes of travel. Implementation of the design concepts is intended to promote community livability by balancing all modes of travel and address the function and character of surrounding land uses when designing streets of regional significance.

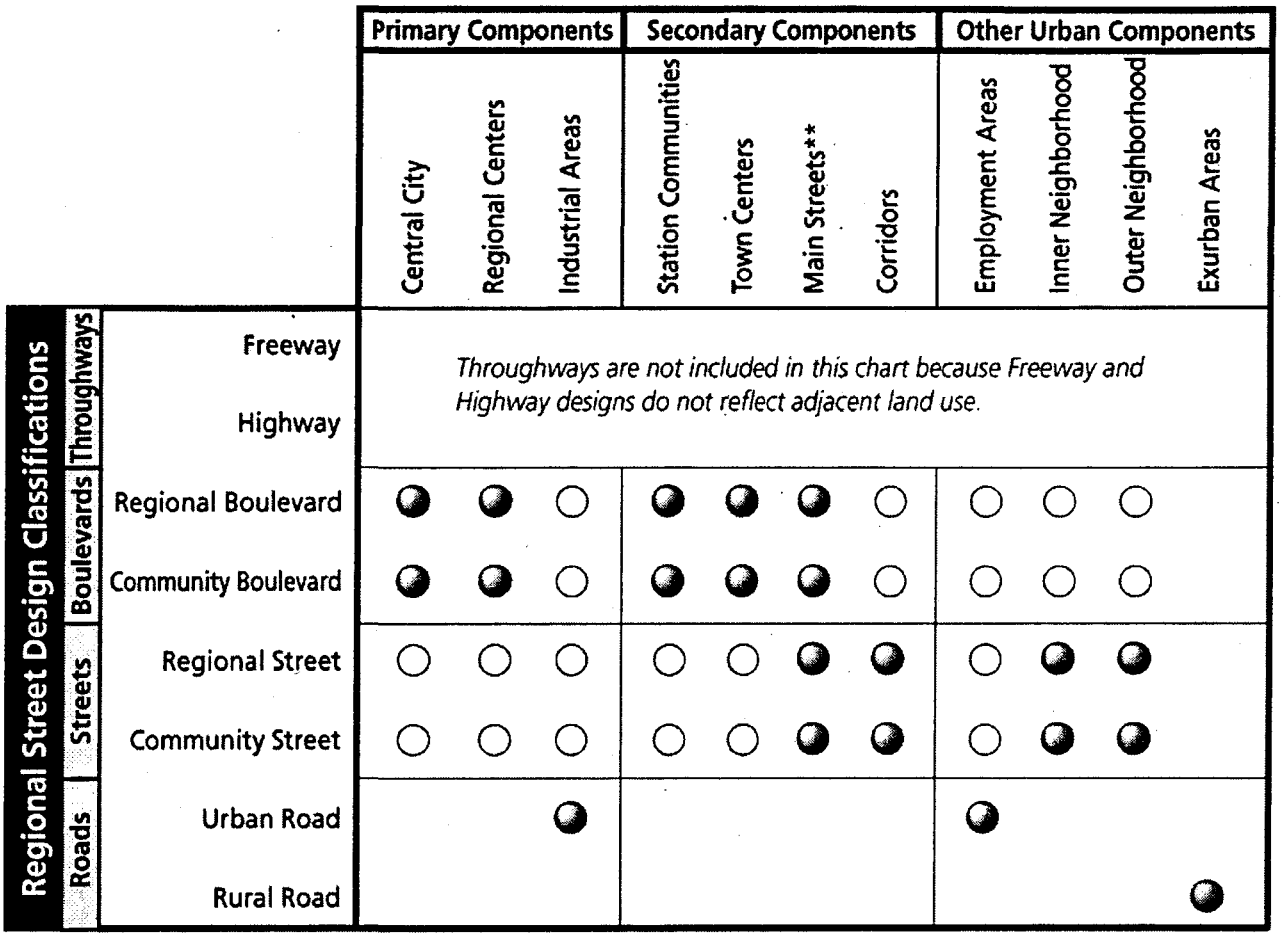
Regional street design concepts

Regional street design concepts are intended to serve multiple modes of travel in a manner that supports the specific needs of the 2040 land-use components. The street design concepts fall into five broad classifications:

- **Throughways** – emphasize motor vehicle travel and connect major activity centers, industrial areas and intermodal facilities
- **Boulevards** – serve major centers of urban activity and emphasize public transportation, bicycle and pedestrian travel while balancing the many travel demands of intensely developed areas
- **Streets** – serve transit corridors, main streets and neighborhoods with designs that integrate many modes of travel and provide easy pedestrian, bicycle and public transportation travel
- **Roads** – are traffic-oriented with designs that integrate all modes but primarily serve motor vehicles
- **Local streets** – complement the regional system by serving neighborhoods and carrying local traffic.

These design concepts apply to the regional system as they relate to specific 2040 Growth Concept land-use components. Figure 1.3 provides a chart of regional street design classifications for roadways that serve a given 2040 land use. The most appropriate street design classification for roadways that serve a given land use is indicated with a solid square(s). The regional street design map, Figure 1.4, applies the regional street design concepts to streets of regional significance. Separate regional street design guidelines were developed to guide local implementation of the design concepts. A detailed discussion of these guidelines can be found in *Creating Livable Streets: Street Design for 2040.* Following Figure 1.4 is a detailed description of the purpose and design emphasis of each design concept.

Figure 1.3
Regional Street Design Classifications and the 2040 Growth Concept



● Most appropriate street design classification

○ Appropriate street design classification in transition areas

** Main Streets feature Boulevard designs along key segments and at major intersections

Source: Metro


Figure 1.4
METRO
Street Design Designations
Freeway
Highway
Regional boulevard
Community boulevard
Possible boulevard intersection
Regional street
Community street
Urban road
Rural road
(dotted lines represent proposed projects and are not intended to represent specific alignments)
Land-use Key
Urban centers
Industry
Neighborhoods
Urban reserves
Rural area
Urban growth boundary
CENTRAL CITY
Vancouver
Portland
Gresham
Troutdale
Beaverton
Hillsboro
Forest Grove
Tigard
Tualatin
Sherwood
Lake Oswego
Milwaukie
Clackamas
Oregon City
West Linn
Wilsonville
Damascus
Boring
Washington Square
Columbia River
Willamette River
Tualatin River
Clackamas River
Beaverton Creek
Johnson Creek
Fanno Creek
Burnside St
Powell Blvd
Division St
Foster Rd
Sunnyside Rd
Cornell Rd
Barnes Rd
Farmington Rd
Scholls Ferry Rd
Tualatin Valley Hwy
Beaverton Hillsdale Hwy
Lombard St
Sandy Blvd
Marine Dr
Highway 500
Cornelius Pass Rd
River Rd
Boones Ferry Rd
Stafford Rd
Advance Rd
Redland Rd
Springwater Rd
Henrici Rd
McLoughlin Blvd
Macadam Ave
Murray Blvd
Hall Blvd
185th Ave
102nd Ave
122nd Ave
132nd Ave
Stark St
BROADWAY
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Regional Street Design System

Throughways

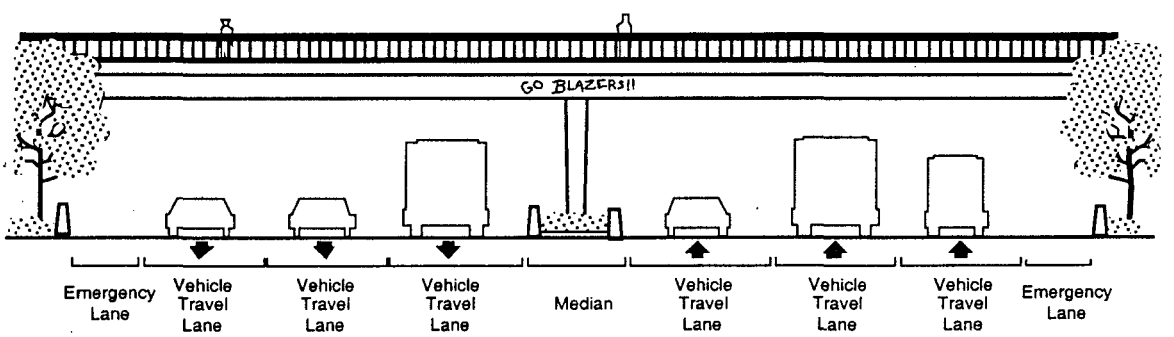
The purpose of throughways is to connect major activity centers within the region, including the central city, regional centers, industrial areas and intermodal facilities to one another and to points outside the region. Throughways are divided into limited access freeway designs where all intersections have separated grades, and highways that include a mix of separate and at-grade intersections.

Both freeways and highways are designed to provide high-speed travel for longer motor vehicle trips throughout the region, are primary freight routes and serve all 2040 Growth Concept land-use components. In addition to facility designs that promote mobility, throughways may also benefit from access management and advanced traffic management system techniques. These facilities may carry transit through-service, with supporting amenities limited to transit stations. These facilities may also incorporate transit-priority design treatment where appropriate, and may incorporate light rail or other high-capacity transit.

Freeways

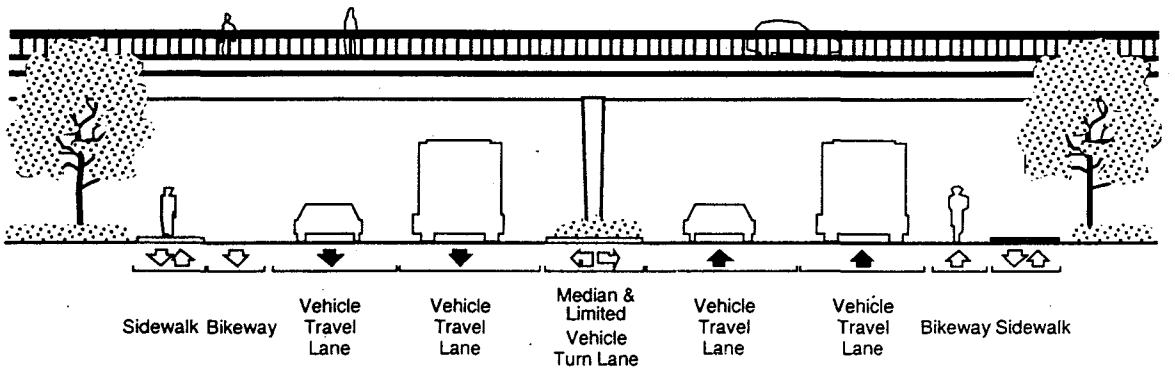
Freeways usually consist of four to six vehicle travel lanes, with additional lanes in some situations. They are completely divided, with no left-turn lanes. Freeway designs have few street connections, and always occur at separated grades with access controlled by ramps. There is no driveway access to freeways or buildings oriented toward these facilities – only emergency parking is allowed. Freeway designs do not include pedestrian amenities, with the exception of improved crossings on overpasses and access ramps. Bikeways designed in conjunction with freeway improvements usually are separated facilities. Figure 1.5 illustrates a typical cross-section of a freeway.

Figure 1.5
Freeway Design Elements



Source: Metro

Figure 1.6
Highway Design Elements



Source: Metro

Highways

Highways usually consist of four to six vehicle travel lanes, with additional lanes in some situations. Highway designs have few street connections, and they may occur at same-grade or on separate grades. Highways are usually divided with a median, but also have left-turn lanes where at-grade intersections exist. There are few driveways on highways, and buildings are not usually oriented toward these facilities. On-street parking is usually prohibited in highway designs, but may exist in some locations. Highway designs include striped bikeways and sidewalks with optional buffering. Improved pedestrian crossings are located on overpasses, underpasses and at same-grade intersections. Figure 1.6 illustrates a typical cross-section of a highway.

Boulevards

Boulevards are designed with special amenities that promote pedestrian, bicycle and public transportation travel in the districts they serve. Boulevards serve the multi-modal needs of the region's most intensely developed activity centers, including the central city, regional centers, station communities, town centers and some main streets. As such, these facilities may benefit from access management, traffic calming and ATMS techniques that reinforce pedestrian, bicycle and public transportation travel. Boulevards are divided into regional and community-scale designs.

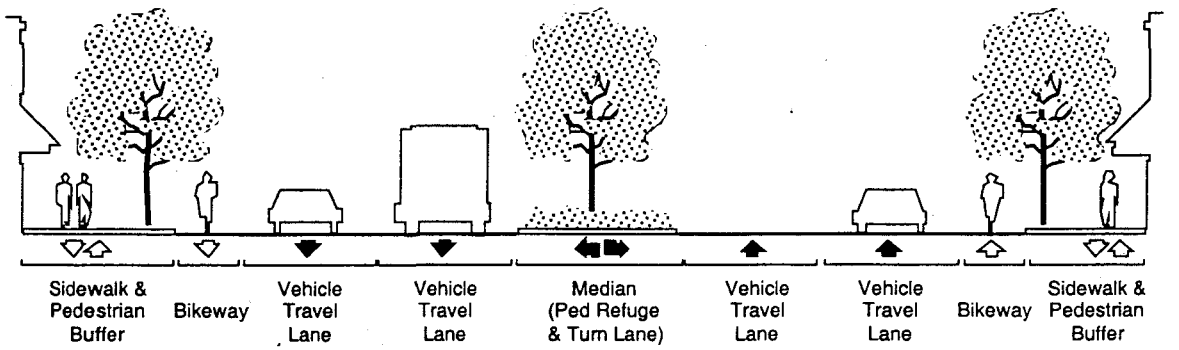
Regional boulevards

Regional boulevards mix a significant amount of motor vehicle traffic with public transportation, bicycle and pedestrian travel where dense development is oriented toward the street. These designs feature low to moderate vehicle speeds and usually include four vehicle lanes. Additional lanes or one-way couplets may be included in some situations. Regional boulevards have many street connections and some driveways, although combined driveways are preferable. These facilities may include on-street parking when possible. The center median serves as a pedestrian refuge and allows for left-turn movements at intersections.

Regional boulevards are designed to be transit-oriented, with high-quality service and substantial transit amenities at stops and station areas. Pedestrian improvements are substantial on boulevards, including broad sidewalks, pedestrian buffering, special street lighting and crossings at all intersections with special crossing amenities at major intersections. These facilities have bike lanes or wide outside lanes

where bike lanes are not physically possible, or are shared roadways where motor vehicle speeds are low. They also serve as primary freight routes and may include loading facilities within the street design. Loading facilities should occur on side streets, where feasible. Figure 1.7 illustrates a typical cross-section of a regional boulevard.

Figure 1.7
Regional Boulevard Design Elements

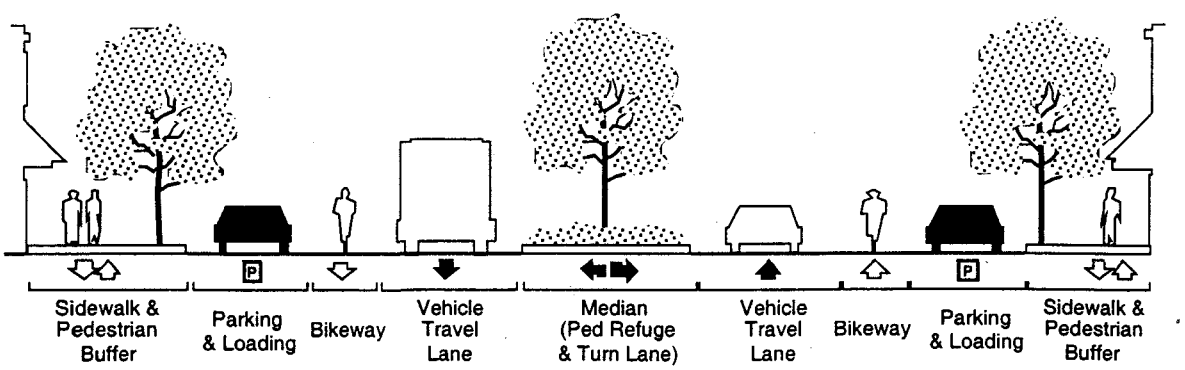


Source: Metro

Community boulevards

Community boulevards mix motor vehicle traffic with public transportation, bicycle and pedestrian travel where dense development is oriented toward the street. These facilities are designed for low motor vehicle speeds and usually include four vehicle lanes and on-street parking. Fewer vehicle lanes may be appropriate in some situations, particularly when necessary to provide on-street parking. Community boulevards have many street connections and some driveways, although combined driveways are preferable. Where appropriate, center medians offer a pedestrian refuge and allow for left turn movements at intersections. Figure 1.8 illustrates a typical cross-section of a community boulevard.

Figure 1.8
Community Boulevard Design Elements



Source: Metro

Community boulevards are designed to be transit-oriented, with high-quality service supported by substantial transit amenities at stops and station areas. Pedestrian improvements are also substantial, including broad sidewalks, pedestrian buffering, special street lighting and crossings at all intersections with special crossing amenities at major intersections. Community boulevards have striped or shared bikeways and some on-street parking. These facilities also serve as secondary freight routes, and may include loading facilities within the street design. Loading facilities should occur on side streets, where feasible.

Boulevard intersections
Boulevard design classifications are usually focused on centers and some main streets where a pedestrian and transit-oriented street design can best complement higher density, mixed-use development patterns. However, there are many locations where corridors and some main streets intersect along major streets. At these intersections, motor vehicle traffic must be managed to limit negative impacts on other modes and adjacent land uses. While boulevard intersections accommodate a significant amount of motor vehicle traffic, they are designed with special amenities that promote pedestrian, bicycle and public transportation travel. Pedestrian improvements are substantial, including broad sidewalks, special lighting, crossings on all streets and special crossing features where unusually heavy motor vehicle traffic is present.

Streets

Streets are designed with amenities that promote pedestrian, bicycle and public transportation travel in the districts they serve, particularly where development densities warrant special transit and pedestrian design consideration. Streets serve the multi-modal needs of the region's corridors, neighborhoods and some main streets. As such, these facilities may benefit from access management, traffic calming and ATMS techniques that enhance pedestrian, bicycle and public transportation travel, while providing appropriate vehicle mobility. Streets are divided into regional and community scale designs.

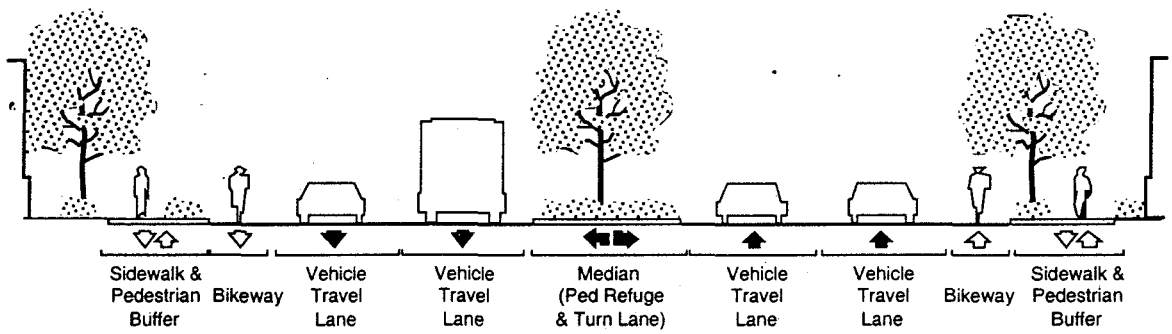
Regional streets
Regional streets are designed to carry significant vehicle traffic while also providing for public transportation, bicycle and pedestrian travel. These facilities serve a development pattern that ranges from low-density residential neighborhoods to more densely developed corridors and main streets, where buildings are often oriented toward the street at major intersections and transit stops. Regional street designs accommodate moderate motor vehicle speeds and usually include four vehicle lanes. Additional motor vehicle lanes may be appropriate in some situations. These facilities have some to many street connections, depending on the district they are serving. Regional streets have few driveways that are combined whenever possible. On-street parking may be included, and a center median serves as a pedestrian refuge and allows for left turn movements at intersections.

These facilities are designed to be transit-oriented, with high-quality service and substantial transit amenities at stops and station areas. Although less substantial than in boulevard designs, pedestrian improvements are important along regional streets, including sidewalks that are buffered from motor vehicle travel, crossings at all intersections and special crossing amenities at major intersections. Regional streets have bike lanes or wide outside lanes where bike lanes are not physically possible, or are shared roadways where motor vehicle speeds are low. They also serve as primary freight routes and may

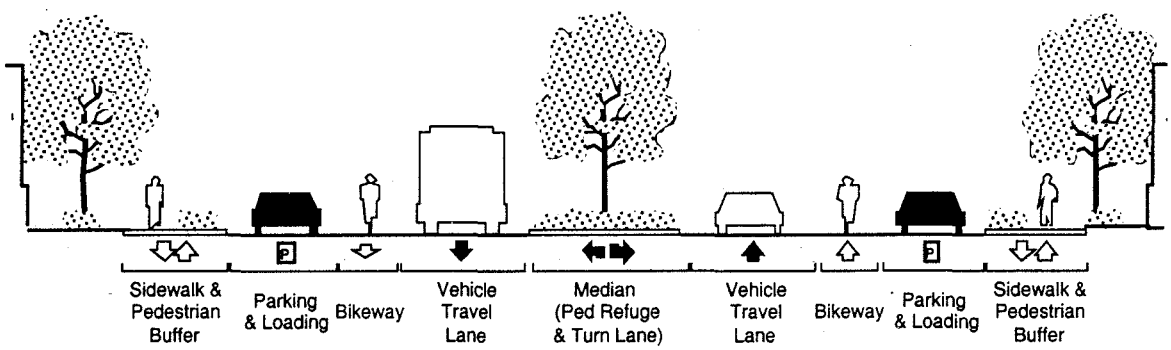
include loading facilities within the street design, where appropriate. Figure 1.9 illustrates a typical cross-section of a regional and community street.

Figure 1.9
Regional and Community Street Design Elements

Regional Street Design Elements



Community Street Design Elements



Source: Metro

Community streets
Community streets are designed to carry vehicle traffic while providing for public transportation, bicycle and pedestrian travel. These facilities serve lower-density residential neighborhoods as well as more densely developed corridors and main streets, where buildings are often oriented toward the street at main intersections and transit stops. Community street designs allow for moderate motor vehicle speeds and usually include four motor vehicle lanes and on-street parking. However, fewer travel lanes may be appropriate when necessary to provide for on-street parking. These facilities have some to many street connections, depending on the 2040 Growth Concept land-use components they serve. Community streets have few driveways that are shared when possible. A center median serves as a pedestrian refuge and allows for left-turn movements at intersections.

Community streets are transit-oriented in design, with transit amenities at stops and station areas. Although less substantial than in boulevard designs, pedestrian improvements are important on community streets, including sidewalks that are buffered from motor vehicle travel, crossings at all intersections and special crossing features at major intersections. Community streets have striped or shared bikeways. These facilities also serve as secondary freight routes and may include loading facilities within the street design, where appropriate. Loading facilities should occur on side streets, where feasible.

Roads

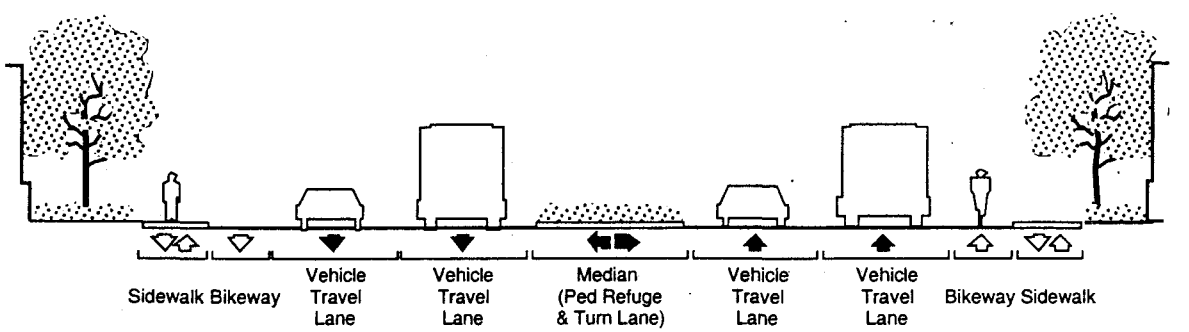
Roads are traffic-oriented designs that provide motor vehicle mobility in the 2040 Growth Concept land-use components they serve and accommodate a minimal amount of pedestrian and public transportation travel. These facilities may benefit from access management and ATMS techniques. Roads serve the travel needs of the region's lower density industrial and employment areas as well as rural areas located outside the urban growth boundary. Roads are, therefore, divided into urban and rural designs.

Urban roads

These facilities are designed to carry significant motor vehicle traffic while providing for some public transportation, bicycle and pedestrian travel. Urban roads serve industrial areas, intermodal facilities and employment centers where buildings are less oriented toward the street. These facilities also serve new urban areas (UGB additions) where plans for urban land use and infrastructure are not complete. Urban roads are designed to accommodate moderate vehicle speeds and usually include four motor vehicle lanes, although additional lanes may be appropriate in some situations. These designs have some street connections, but few driveways. Urban roads rarely include on-street parking, and a center median primarily serves to optimize motor vehicle travel and to allow for left-turn movements at intersections.

Urban roads serve as primary freight routes and often include special design treatments to improve freight mobility. These facilities are designed for transit through-service, with limited amenities at transit stops. Sidewalks are included in urban road designs, although buffering is optional. Pedestrian crossings are included at intersections. Urban roads have striped bikeways. Figure 1.10 illustrates a typical cross-section of an urban road.

Figure 1.10
Urban Road Design Elements

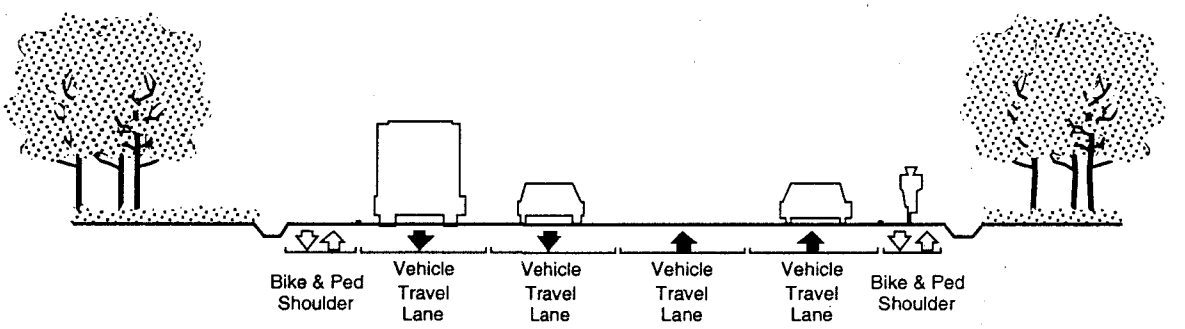


Source: Metro

Rural roads

Rural roads are designed to carry rural traffic while accommodating limited public transportation, bicycle and pedestrian travel. In some cases rural roads serve to connect urban traffic to throughways. Rural roads serve urban reserves, rural reserves and green corridors, where development is widely scattered and usually located away from the road. These facilities are designed to allow moderate motor vehicle speeds and usually consist of two to four motor vehicle lanes, with occasional auxiliary lanes appropriate in some situations. Rural roads have some street connections and few driveways. On-street parking occurs on an unimproved shoulder, and is usually discouraged. These facilities may include center turn lanes, where appropriate. Figure 1.11 illustrates a typical cross-section of a rural road.

Figure 1.11
Rural Road Design Elements



Source: Metro

Rural roads serve as primary freight routes and often provide important farm-to-market connections. Special design treatments to improve freight mobility are therefore important in these designs. Rural roads rarely serve public transportation, but may include limited amenities at rural transit stops where transit service does exist. Bicycles and pedestrians share a common striped shoulder on these facilities, and improved pedestrian crossings occur only in unique situations (such as rural schools or commercial districts).

Policy 12.0. Local Street Design
Design local street systems to complement planned land uses and to reduce dependence on major streets for local circulation, consistent with Section 6.4.5 in Chapter 6 of this plan.

Local streets include all facilities not identified on the regional motor vehicle system map in Figure 1.11 of this plan. Local streets serve the immediate travel needs of the region at the neighborhood level. These facilities are multi-modal and are designed to serve most short automobile, bicycle and pedestrian trips. They generally do not carry freight in residential areas, but are important to freight movement in industrial and commercial areas. Local streets may serve as transit routes in some situations. Local street designs include many connections with other streets, and bicycle and pedestrian accessways where topography or existing development patterns prevent full street extensions.

Policy 13.0. Regional Motor Vehicle System
Provide a regional motor vehicle system of arterials and collectors that connect the central city, regional centers, industrial areas and intermodal facilities, and other regional destinations, and provide mobility within and through the region.

a. Objective: Provide for statewide, national and international connections to and from the region, consistent with the Oregon Transportation Plan.
b. Objective: Provide a system of principal arterials for long-distance, high-speed, interstate, inter-region and intra-region travel.
c. Objective: Provide an adequate system of arterials that supports local and regional travel.
d. Objective: Provide an adequate system of local streets that supports localized travel, thereby reducing dependence on the regional system for local travel.
e. Objective: Maintain an acceptable level of service on the regional motor vehicle system during peak and off-peak periods of demand, as defined in Table 1.1.
f. Objective: Minimize the effect of improved regional access outside the urban area.
g. Objective: Minimize the impact of urban travel on rural land uses. Limit access to and minimize urban development pressure on rural land uses and resource lands by maintaining appropriate levels of access to support rural activities, while discouraging urban traffic.
h. Objective: Implement a congestion management system to identify and evaluate low cost strategies to mitigate and limit congestion in the region.

These policies and objectives direct the region's planning and investment in the regional motor vehicle system. The regional motor vehicle system is designed to provide access to the central city, regional centers, industrial areas and intermodal facilities with an emphasis on mobility between these destinations. The regional motor vehicle system is shown in Figure 1.12 of this plan.

This plan recognizes the need to accommodate a variety of trip types on the regional motor vehicle system that include personal errands, commuting to work or school, commerce, freight movement and public transportation. In general, this plan recognizes there would be a higher degree of mobility during the mid-day compared to the peak-hour. Although focused on motor vehicle travel, the system described in this section is multi-modal, with design criteria intended to serve motor vehicle mobility needs while reinforcing the urban form of the 2040 Growth Concept. While the motor vehicle system usually serves bicycle and pedestrian travel, the system is designed to limit impacts of motor vehicles on pedestrian and transit-oriented districts.

Finally, the Regional Transportation Plan must demonstrate that it defines an adequate transportation system to serve planned land uses. The motor vehicle performance measures identified in Table 1.1 serve as the basis for making this determination.

In areas of special concern, substitute performance measures identified in Chapter 6 will be used to make a determination of whether the transportation system is adequate to serve planned land uses. Areas with this designation are planned for mixed used development, but are also characterized by physical, environmental or other constraints that limit the range of acceptable transportation solutions for addressing a level-of-service need, but where alternative routes for regional through-traffic are provided. Figure 1.13 in this chapter defines areas where this designation applies. In these areas, substitute performance measures are allowed by OAR.660.012.0060(1)(d). Provisions for determining the alternative performance measures are included in Section 6.7.6 of this plan. Adopted performance measures for these areas are detailed in Appendix ___.

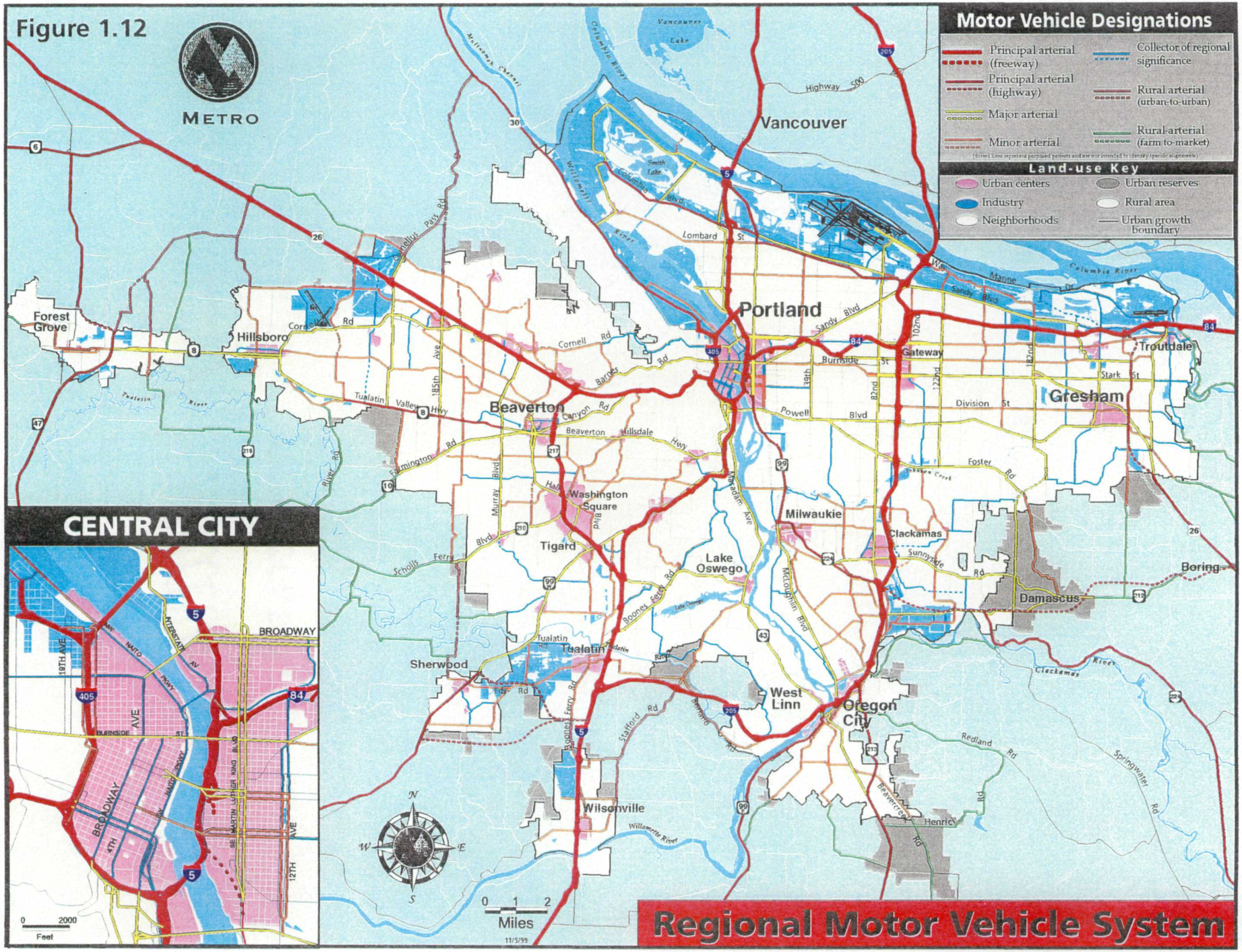


Figure 1.12
METRO
Motor Vehicle Designations
Principal arterial (freeway)
Principal arterial (highway)
Major arterial
Minor arterial
Collector of regional significance
Rural arterial (urban-to-urban)
Rural arterial (farm to-market)
(dotted lines represent proposed projects and are not intended to identify specific alignments)
Land-use Key
Urban centers
Industry
Neighborhoods
Urban reserves
Rural area
Urban growth boundary
CENTRAL CITY
Vancouver
Portland
Forest Grove
Hillsboro
Beaverton
Tigard
Tualatin
Sherwood
Wilsonville
Lake Oswego
West Linn
Oregon City
Milwaukie
Clackamas
Gresham
Troutdale
Damascus
Boring
Washington Square
Gateway
Columbia River
Willamette River
Clackamas River
Vancouver Lake
Smith Lake
Highway 500
Lombard St
Sandy Blvd
Burnside St
Stark St
Division St
Powell Blvd
Foster Rd
Cornell Rd
Barnes Rd
Canyon Rd
Beaverton Hillsdale Hwy
Farmington Rd
Tualatin Valley Hwy
Scholls Ferry Rd
Boones Ferry Rd
Tualatin Rd
Stafford Rd
Borland Rd
Johnson Creek Blvd
Sunnyside Rd
Redland Rd
Springwater Rd
Henrici Rd
Beavercreek Rd
Oatfield Rd
McLoughlin Blvd
Macadam Ave
Murray Blvd
185th Ave
Cornelius Pass Rd
Multnomah Channel
Columbia Blvd
Marine Dr
102nd
82nd
122nd
162nd
19th
Broadway
Interstate Ave
NW Naito Pkwy
SW Harbor Pkwy
SE Martin Luther King Blvd
SE 12th Ave
SW 18th Ave
SW 4th Ave
Burnside St
N
S
E
W
0 1 2
Miles
0 2000
Feet
11/5/99
Regional Motor Vehicle System

Table 1.1
Regional Motor Vehicle Performance Measures
Deficiency Thresholds and Operating Standards*

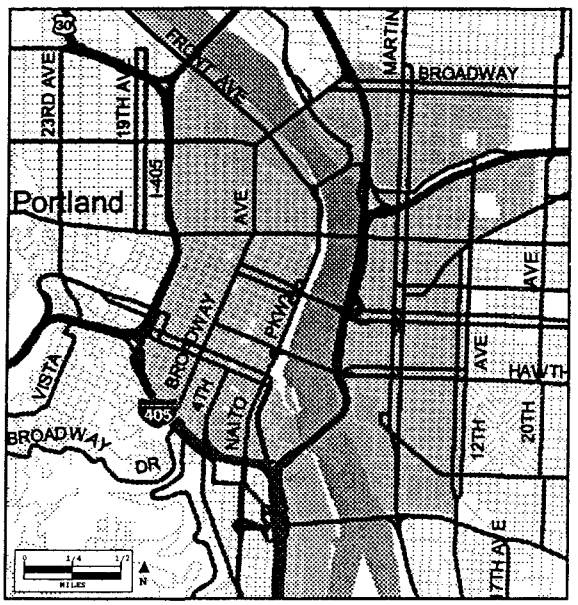
Location	Mid-Day One-Hour Peak			A.M./P.M. Two-Hour Peak					
	Preferred Operating Standard	Acceptable Operating Standard	Exceeds Deficiency Threshold	Preferred Operating Standard		Acceptable Operating Standard		Exceeds Deficiency Threshold	
				1st Hour	2nd Hour	1st Hour	2nd Hour	1st Hour	2nd Hour
Central City Regional Centers Town Centers Main Streets Station Communities	C	E	F	E	E	F	E	F	F
Corridors Industrial Areas Intermodal Facilities Employment Areas Inner Neighborhoods Outer Neighborhoods	C	D	E	E	D	E	E	F	E
Banfield Freeway* *(from I-5 to I-205)*	C	E	F	E	E	F	E	F	F
I-5 North* *(from Marquam Bridge to Interstate Bridge)*	C	E	F	E	E	F	E	F	F
Highway 99E* *(from the Central City to Highway 224 interchange)*	C	E	F	E	E	F	E	F	F
Sunset Highway* *(from I-405 to Sylvan interchange)*	C	E	F	E	E	F	E	F	F
Stadium Freeway* *(I-5 South to I-5 North)*	C	E	F	E	E	F	E	F	F
Other Principal Arterial Routes	C	D	E	E	D	E	E	F	E
Areas of Special Concern	*Areas with this designation are planned for mixed used development, but are also characterized by physical, environmental or other constraints that limit the range of acceptable transportation solutions for addressing a level-of-service need, but where alternative routes for regional through-traffic are provided. Figures 1.13.a-d in this chapter define areas where this designation applies. In these areas, substitute performance measures are allowed by OAR.660.012.0060(1)(d). Provisions for determining the alternative performance measures are included in Section 6.7.6 of this plan. Adopted performance measures for these areas are detailed in Appendix [blank].*								

Level-of-service is determined by using either the latest edition of the Highway Capacity Manual (Transportation Research Board) or through volume to capacity ratio equivalencies as follows: LOS C = .8 or better; LOS D = .8 to .9; LOS E = .9 to 1.0; and LOS F = 1.0 to 1.1. A copy of the level of service tables from the Highway Capacity Manual is shown in Appendix [blank].

**Thresholds shown are for interim purposes, only; refinement plans for these corridors are required in Chapter 6 of this plan, and will include a recommended motor vehicle performance policy for each corridor.*

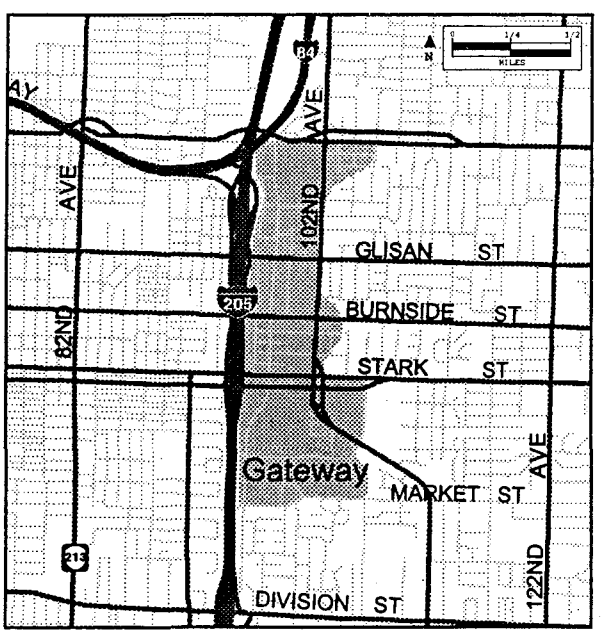
Source: Metro

Figure 1.13.a
Portland Central City
Area of Special Concern



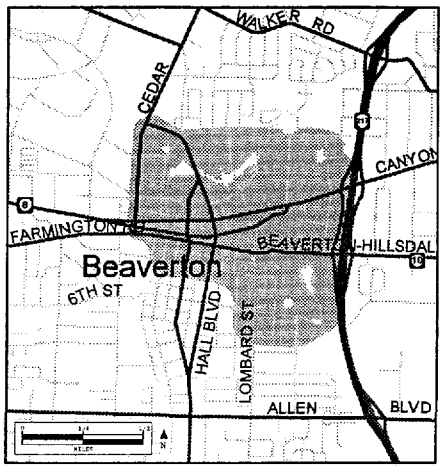
The Portland central city is planned for the highest density of employment and housing in the region. The central city area east of the Willamette River, and generally within the I-405 freeway ring, is characterized by an extensive grid of well-connected arterial, collector and local streets. Access to the central city from eastside neighborhoods is constrained by the Willamette River, and the hilly topography to the west of the river has constrained much of the transportation system in the Northwest and Southwest portions of the central city. Refer to Appendix {blank} for detail on alternative performance measures identified for this area of special concern.

Figure 1.13.b
Gateway Regional Center
Area of Special Concern



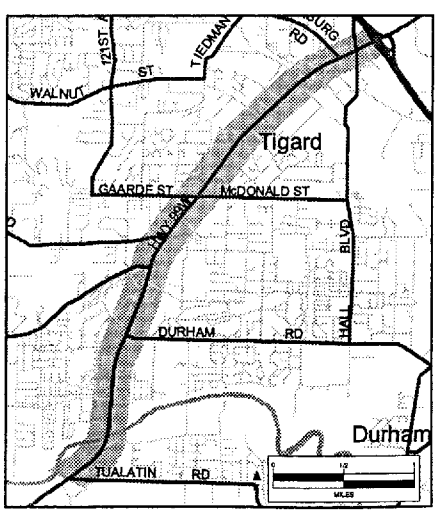
Gateway regional center is located at a major crossroads of transportation. It is impacted by through-traffic not destined for the regional center, presenting barriers to local circulation where congested through-streets isolate parts of the regional center. Refer to Section 6.7.6 in Chapter 6 for detail on refinement planning needed for this area of special concern.

Figure 1.13.c
Beaverton Regional Center
Area of Special Concern



Beaverton has historically developed as a crossroads of transportation, with both the advantages and limitations that heavy through traffic brings. While the level of access has helped make the Beaverton regional center a focus of commerce in Washington County, it also presents barriers to local circulation where congested through-streets isolate some parts of the area. Appendix {blank} describes alternative performance measures identified for this area of special concern.

Figure 1.13.d
Highway 99W
Area of Special Concern

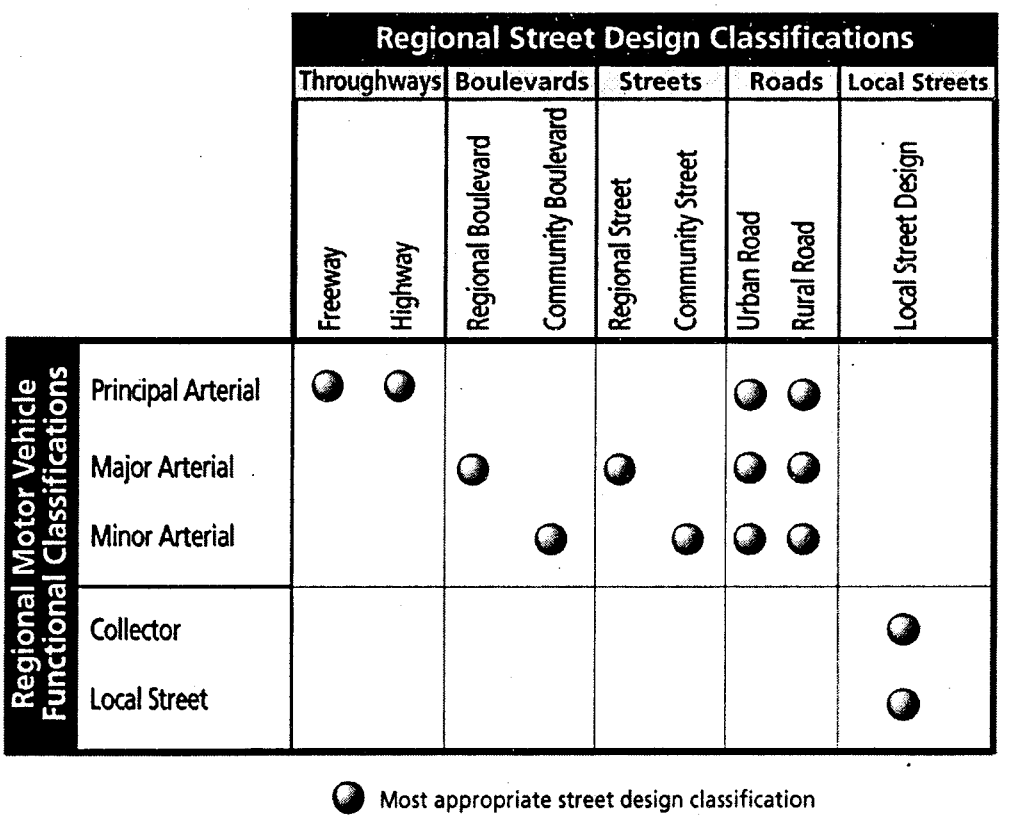


The Highway 99W corridor between Highway 217 and Tualatin Road is designated as a mixed-use corridor in the 2040 Growth Concept and connects the Tigard and King town centers. This corridor is also designated as an area of special concern due to existing development patterns and economic constraints that limit adding capacity to address heavy travel demand in this corridor. Local planning studies have found that approximately 50 percent of the traffic using this corridor is local. The Regional Transportation Plan establishes the proposed I-5 to 99W connector as the principal route connecting the Metro region to the 99W corridor outside of the region as an alternative to 99W. Refer to Section 6.7.6 in Chapter 6 for detail on refinement planning needed for this area of special concern.

Regional Motor Vehicle Functional Classification System

The regional motor vehicle system includes principal arterials, major and minor arterials, rural arterials and collectors of regional significance. These routes are designated on the motor vehicle system map, Figure 1.12. Local comprehensive plans also include additional minor arterials, collectors and local streets. Figure 1.14 provides a chart of the regional motor vehicle functional classifications and their relationship to the regional street design classifications. The most appropriate street design classification for roadways that serve a given functional classification is indicated with a solid square(s). Following Figure 1.14 is a detailed description of the regional motor vehicle functional classification categories.

Figure 1.14
Relationship Between Regional Street Design and Motor Vehicle Classifications



Source: Metro

The following are the regional functional classification categories:

Principal arterials: These facilities form the backbone of the motor vehicle network. Motor vehicle trips entering and leaving the urban area follow these routes, as well as those destined for the central city, regional centers, industrial areas or intermodal facilities. These routes also form the primary connection

between neighbor cities and the urban area. Principal arterials serve as major freight routes, with an emphasis on mobility. These routes fall within regional freeway, highway and road designs, as defined in the regional street design concepts.

Principal arterial system design criteria:

- Principal arterials should provide an integrated system that is continuous throughout the urbanized area and should also provide for statewide continuity of the rural arterial system.
- The principal arterial system should serve the central city, regional centers, industrial areas and intermodal facilities, and should connect key freight routes within the region to points outside the region.
- A principal arterial should provide direct service: from each entry point to each exit point or from each entry point to the central city. If more than one route is available, the most direct route will be designated as the principal arterial when it supports the planned urban form.

Major arterials: These facilities serve as primary links to the principal arterial system. Major arterials, in combination with principal arterials, are intended to provide general mobility for travel within the region. Motor vehicle trips between the central city, regional centers, industrial areas and intermodal facilities should occur on these routes. Major arterials serve as freight routes, with an emphasis on mobility. These routes fall within regional boulevard, regional street, urban road and rural road designs, as defined in the regional street design concepts.

Major arterial system design criteria:

- Major arterials should provide motor vehicle connections between the central city, regional centers, industrial areas and intermodal facilities and connect to the principal arterial system. If more than one route is available, the more direct route will be designated when it supports the planned urban form.
- Major arterials should serve as primary connections to principal arterials, and should also connect to other arterials, collectors and local streets, where appropriate.
- Freight movement should not be restricted on the principal arterial network.
- The principal and major arterial systems in total should comprise 5-10 percent of the motor vehicle system and carry 40-65 percent of the total vehicle miles traveled.

Minor arterials: The minor arterial system complements and supports the principal and major arterial systems, but is primarily oriented toward motor vehicle travel at the community level connecting town centers, corridors, main streets and neighborhoods. As such, minor arterials usually serve shorter trips than principal and major arterials, and therefore must balance mobility and accessibility demands. Minor arterials may serve as freight routes, providing both access and mobility. These routes fall within community boulevard, community street, urban road and rural road designs, as defined in the regional street design concepts.

Minor arterial system design criteria:

- Minor arterials generally connect town centers, corridors, main streets and neighborhoods to the nearby regional centers or other major destinations.
- Minor arterials should connect to major arterials, collectors, local streets and some principal arterials, where appropriate.
- The principal, major and minor arterial system should comprise 15-25 percent of the motor vehicle system and carry 65-80 percent of the total vehicle miles traveled.

Rural arterials: The rural arterial system serves urban reserve areas, rural reserve areas and green corridors. There are two functional categories of rural arterial – urban-to-urban and farm-to-market. Urban-to-urban rural arterials provide key connections to the regional motor vehicle system and 2040 land-use components inside the urban growth boundary. While principal arterials provide primary connections from the Metro region to neighboring cities, urban-to-urban rural arterials also function as secondary connections to neighboring cities. Farm-to-market rural arterials provide farm-to-market access between urban and rural areas.

Collectors: While some collectors are of regional significance, most of the collector system operates at the community level to provide local connections to the minor and major arterial systems. As such, collectors carry fewer motor vehicles than arterials, with reduced travel speeds. However, an adequate collector system is needed to serve these local motor vehicle travel needs. Collectors may serve as freight access routes, providing local connections to the arterial network. Collectors fall within the plan's local street design principles.

Collectors of regional significance connect the regional arterial system and the local collector system by collecting and distributing neighborhood traffic to arterials. Collectors of regional significance have three purposes. First, these facilities ensure adequate access to the primary and secondary land-use components of the 2040 Growth Concept. Second, collectors of regional significance allow dispersion of arterial level traffic over a number of lesser facilities where an adequate local street network exists. Third, collectors of regional significance help define appropriate collector level movement between jurisdictions.

Collector system design criteria:

- Collectors should connect neighborhoods to nearby centers, corridors, station areas, main streets and other nearby destinations.
- Collectors should connect to minor and major arterials and other collectors, as well as local streets.
- The collector system should comprise 5-10 percent of the motor vehicle system and carry 5-10 percent of the total vehicle miles traveled.

Local streets: The local street system is used throughout the region to provide for local circulation and access. However, arterials in the region's newest neighborhoods are often the most congested due to a lack of local street connections. The lack of local street connections forces local auto trips onto the principal and major arterial network, resulting in significant congestion on many suburban arterials. These routes fall within the plan's local street design principles.

Local Street System Design Criteria:

- Local streets should connect neighborhoods, provide local circulation and give access to adjacent centers, corridors, station areas and main streets.
- The local street system should be designed to serve local, low-speed motor vehicle travel with closely interconnected local streets intersecting at no more than 530-foot intervals. Closed local street systems are appropriate only where topography, environmental or infill limitations exist. Local streets should connect to major and minor arterials and collectors at a density of 10 to 16 street intersections per mile.
- Local streets should comprise 65-80 percent of the motor vehicle system and carry 10-30 percent of the total vehicle miles traveled.

Policy 14.0. Regional Public Transportation System
Provide an appropriate level, quality and range of public transportation options to serve this region and support implementation of the 2040 Growth Concept, consistent with Figure 1.15.

a. Objective: Serve this region with appropriate public transportation service as defined in Figure 1.15.
b. Objective: Continue to work with local jurisdictions and Tri-Met to implement Tri-Met's Transit Choices for Livability community transit plan.
c. Objective: Provide special transit service as needed, such as para-transit, that complies with the Americans with Disabilities Act of 1990.
d. Objective: Develop a long-term strategy for potential use of freight railroad lines for passenger use and work with jurisdictions inside and outside of the Metro area to explore other commuter rail opportunities.

Policy 14.1. Regional Public Transportation System
Expand the amount of information available about public transportation to allow more people to use the system.

a. Objective: Increase awareness of public transportation and how to use it through expanded education and public information media and easy to understand schedule information and format.
b. Objective: Improve mechanisms for receiving and responding to feedback from public transportation users.
c. Objective: Explore new technologies to improve the availability of schedule, route, transfer and other service information.

Policy 14.2. Regional Public Transportation System
Continue efforts to make public transportation an environmentally-friendly and safe form of motorized transportation.

a. Objective: Continue to reduce the amount of air pollutants and noise generated by public transportation vehicles.
b. Objective: Support efforts by the region's transit providers to improve the existing level of passenger safety and security on public transportation and reduce the number of avoidable accidents involving transit vehicles.

These policies and objectives direct the region's planning and investment in the regional public transportation system. Public transportation has been an increasingly important component of our region's transportation system during the past 25 years. In the next 20 years, public transportation will play a critical role in linking people to activity centers throughout the region and getting them around their local communities. On an average weekday in 1998, approximately 186,000 riders used the bus and rail systems in this region. By 2020 that number is expected to increase to 500,000 riders as a result of transit improvements identified in this plan.

Figure 1.15
Relationship Between 2040 Growth Concept and Public Transportation System

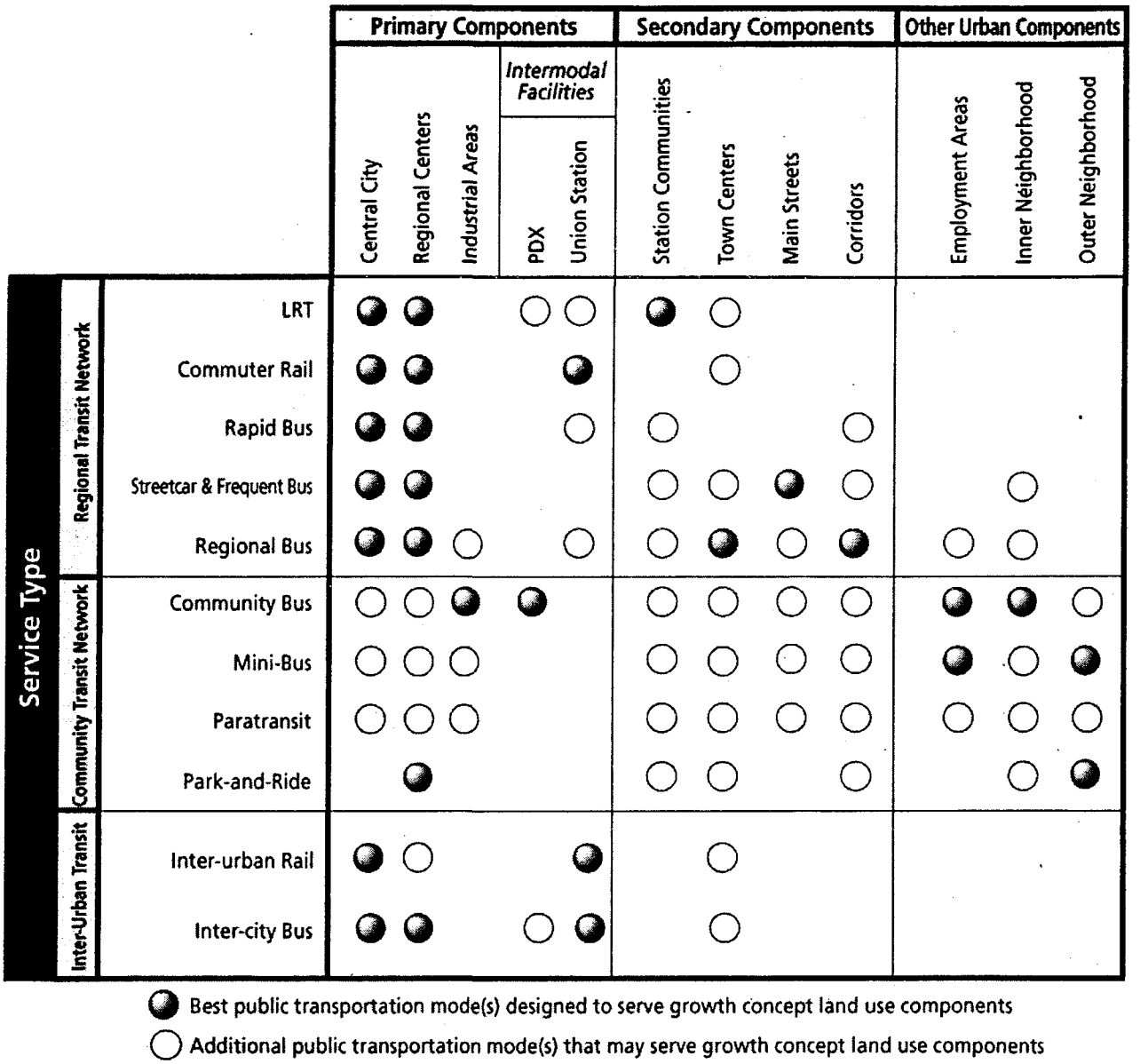


Figure 1.15 provides a hierarchy of public transportation service for 2040 Growth Concept land-use components. "Core service" is defined as the most efficient level of public transportation service planned for a given land use and is indicated with a solid square(s). A description of each type of core service follows the public transportation policies.

Source: Metro

Regional public transportation system components

Metro's role is to establish a 20-year plan for regional transit improvements, such as major bus or rail service, through the Regional Transportation Plan. Tri-Met is the primary public transportation provider for the metropolitan region and is committed to providing the appropriate level of transit service to achieve regional 2040 Growth Concept objectives. Tri-Met implements transit improvements identified in the Regional Transportation Plan through annual updates and expansions to their service plan. In addition, Tri-Met plans for improvements to community-level transit service, such as local bus lines or lift services. Annual growth trends, ridership and traffic congestion are all considerations in where expanded transit service is most needed each year.

However, this plan recognizes that providers other than Tri-Met are needed to serve special transportation needs. Other public transit operators in region include SMART, which serves the Wilsonville area, and C-Tran, which serves Clark County and includes bus service to points in Portland. Metro works with these operators, as well, to ensure that planned transit service is adequate to meet our 20-year needs. While this is not required in this plan, Metro is committed to helping coordinate agreements to address special needs as they arise. Such special needs may be served by private service providers, public/private partnerships, or public actions, as appropriate.

Public transportation should serve the entire urban area, and the hierarchy of service types described in this section defines what level and type of service is appropriate for specific areas of the region. The public transportation system is divided in three categories based on frequency of service and the areas of the region each network serves – the regional transit network, or RTN; the community transit network; or CTN; and interurban public transportation. The regional public transportation system map, Figure 1.16, depicts the regional transit network and interurban public transportation components.

The following section describes:

- the types of transit service each network provides;
- the principal 2040 Growth Concept land-use components (primary and community) served by each service type; and
- facility design guidelines to provide an appropriate operating environment and level of pedestrian and bicycle accessibility.

Regional transit network

The regional transit network is a fast and frequent transit system designed to serve the primary land-use components identified in the 2040 Growth Concept, including central city, regional centers, industrial areas and intermodal facilities such as the Portland International Airport. This system serves as the framework for consistency among plans of local jurisdictions and Tri-Met and consists of five major transit modes that operate at frequencies of 15 minutes or less all day. The five primary transit modes included in this plan are light rail transit, commuter rail, rapid bus, streetcar, frequent bus and regional bus service. The regional transit network is designed to provide convenient transit access and improve connections between transit modes. Any transit trip between two points located in a primary or secondary 2040 Growth Concept land-use component could be completed on the regional transit network. This includes the central city, regional centers, town centers, main streets, stations areas or corridors. The following is a description of the functional and operational characteristics of the regional transit network's major transit modes.

Light rail transit. Light rail transit (LRT) is a frequent and high-capacity service that operates on a fixed guideway within an exclusive right-of-way to the extent possible, connecting the central city with regional centers. LRT also serves existing regional public attractions such as Civic Stadium, the Oregon Convention Center and the Rose Garden, and station communities. LRT service runs at least every 10 minutes during the weekday and weekend midday base periods with limited stops and operates at higher speed outside of downtown Portland. A high level of passenger amenities are provided at transit stations and station communities including schedule information, ticket machines, special lighting, benches, shelters, bicycle parking and commercial services. The speed and schedule reliability of LRT can be maintained by the provision of signal preemption at-grade crossings and/or intersections.

Commuter rail. Commuter rail is the use of existing freight railroad tracks either exclusively or shared with freight use, for passenger service. The service is typically focused on peak commute periods but can be offered other times of the day when demand exists and where rail capacity is available. The stations are typically located one or more miles apart, depending on the overall route length. Stations offer basic amenities for passengers, bus and LRT transfer opportunities and parking if supported by adjacent land uses.

Rapid bus. Regional rapid bus service emulates LRT service in speed, frequency and comfort, serving major transit routes with limited stops. This service runs at least every 15 minutes during the weekday and weekend mid-day base periods. Passenger amenities are concentrated at transit centers. Regional rapid bus passenger amenities include schedule information, ticket machines, special lighting, benches, covered bus shelters and bicycle parking.

Street cars. Street cars provide fixed-route transit service for more locally oriented trips in higher density mixed-use centers. This service runs at least every 15 minutes and includes transit preferential treatments such as signal preemption and enhanced passenger amenities along the corridor such as covered bus shelters, curb extensions and special lighting.

Frequent bus. Frequent bus service provides slightly slower, but more frequent, local bus service than rapid bus along selected transit corridors. This service runs at least every 10 minutes and includes transit preferential treatments such as reserved bus lanes and signal preemption and enhanced passenger amenities along the corridor and at major bus stops such as covered bus shelters, curb extensions, special lighting and median stations.

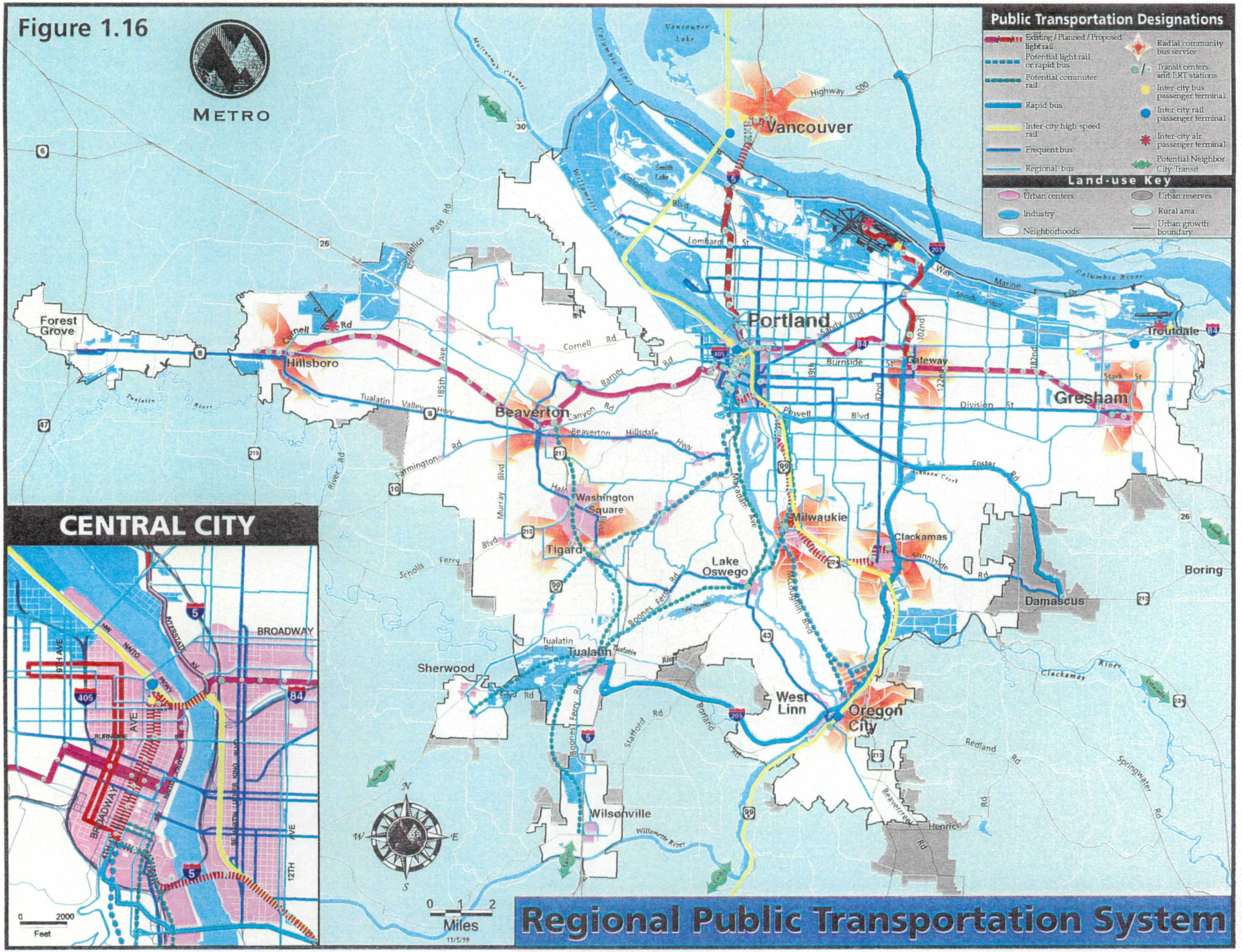
Regional bus. Regional bus service is provided on most major urban streets. This type of bus service operates with maximum frequencies of 15 minutes with conventional stop spacing along the route. Transit preferential treatments and passenger amenities such as covered bus shelters, special lighting, signal preemption and curb extensions are appropriate at high ridership locations.

Community transit network (CTN)

Underlying the primary transit network of fast and frequent service is a community network of transit service that provides more locally-oriented public transportation. Tri-Met and local jurisdictions will develop specific elements of the community transit network. The community transit network is comprised of community bus, mini-bus, para-transit and park-and-ride service. This service is focused more on accessibility, frequency of service along the route and coverage to a wide range of land use options rather than on speed between two points. Community transit is designed as an alternative to the single-occupant vehicle by providing frequent reliable service. Community bus service generally is

Figure 1.16

METRO



designed to serve travel with one trip end occurring within a secondary land use component, including town centers, main streets, station communities and corridors.

Community bus. Community bus lines provide coverage and access to primary and secondary land-use components. Community bus service runs as often as every 30 minutes on weekdays. Weekend service is provided as demand warrants.

Mini-bus. Mini-bus service provides coverage in lower density areas by providing transit connections to primary and secondary land-use components. Mini-bus services, which may range from fixed route to purely demand responsive including dial-a-ride, employer shuttles and bus pools, provide at least a 60-minute response time on weekdays. Weekend service is provided as demand warrants.

Para-transit. Para-transit service is defined as non-fixed route service that serves special transit markets, including "ADA" service throughout the greater metro region.

Park-and-ride. Park-and-ride facilities provide convenient auto access to regional trunk route service for areas not directly served by transit. Bicycle and pedestrian access as well as parking and storage accommodations for bicyclists are considered in the siting process of new park-and-ride facilities. In addition, the need for a complementary relationship between park-and-ride facilities and regional and local land use goals exists and requires periodic evaluation over time for continued appropriateness.

Interurban public transportation

The federal ISTEA has identified interurban travel and passenger "intermodal" facilities (e.g., bus and train stations) as a new element of regional transportation planning. The following interurban components are important to the regional transportation system:

Passenger rail. Inter-city high-speed rail (up to 79 miles per hour) is part of the state transportation system and extends from the Willamette Valley north to British Columbia. Amtrak already provides service south to California, east to the rest of the continental United States and north to Canada. These systems should be integrated with other public transportation services within the metropolitan region with connections to passenger intermodal facilities. High-speed rail needs to be complemented by urban transit systems within the region.

Inter-city bus. Inter-city bus connects points within the region to nearby destinations, including neighboring cities, recreational activities and tourist destinations. Several private inter-city bus services are currently provided in the region.

Passenger intermodal facilities. Passenger intermodal facilities serve as the hub for various passenger modes and the transfer point between modes. These facilities are closely interconnected with urban public transportation service and highly accessible by all modes. They include Portland International Airport, Union Station and inter-city bus stations.

Policy 15.0. Regional Freight System
Provide efficient, cost-effective and safe movement of freight in and through the region.

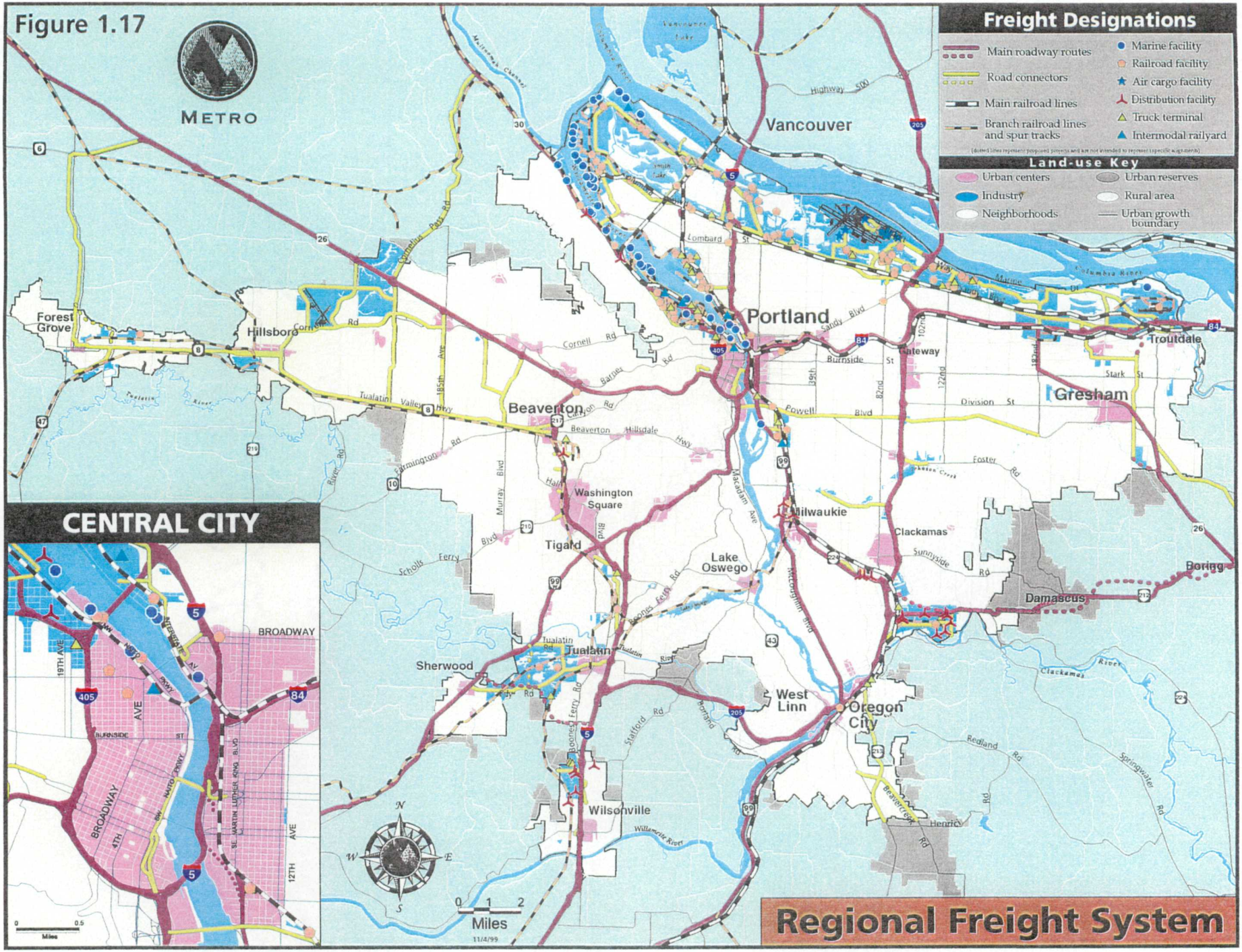
a. Objective: Provide high-quality access between freight transportation corridors and the region's freight intermodal facilities and industrial sanctuaries.
b. Objective: Maintain a reasonable and reliable travel time for moving freight through the region in freight transportation corridors that enhances the region's economic competitive advantage.
   - Freight operation (such as weigh-in-motion, automated truck counts, enhanced signal timing on freight connectors).
   - Where appropriate, consider improvements that are dedicated to freight travel only.
c. Objective: Consider the movement of freight when conducting multi-modal transportation studies.
d. Objective: Work with the private sector, local jurisdictions, ODOT and other public agencies to:
   - develop the regional Intermodal Management System (IMS) and Congestion Management System (CMS)
   - monitor the efficiency of freight movements on the regional transportation network
   - identify existing and future freight mobility problems and opportunities
   - reduce inefficiencies or conflicts on the freight network
   - maximize use of ship, rail, air and truck for a multi-modal freight system
   - address safety concerns related to freight.
e. Objective: Coordinate public policies to reduce or eliminate conflicts between current and future land uses, transportation uses and freight mobility needs, including those relating to:
   - land use changes/encroachments on industrial lands; and
   - transportation and/or land use actions or policies that reduce accessibility to terminal facilities or reduce the efficiency of the freight system.
f. Objective: Ensure that jurisdictions develop local strategies that provide adequate freight loading and parking strategies in the central city, regional centers, town centers and main streets.
g. Objective: Develop improved measures of freight movement as defined in the 2040 Growth Concept.
h. Objective: Correct existing safety deficiencies on the freight network relating to:
   - roadway geometry and traffic controls;
   - bridges and overpasses;
   - at-grade railroad crossings;
   - truck infiltration in neighborhoods; and
   - congestion on interchanges and hill climbs.

Policy 15.1. Regional Freight System
Protect and enhance public and private investments in the freight network.

a. Objective: Improve opportunities for partnerships between the private freight transportation industry and public agencies to improve and maintain the region's integrated multi-modal freight network:
- work with the private transportation industry, Oregon Economic Development Department, Portland Development Commission, Port of Portland and others to identify and realize investment opportunities that enhance freight mobility and support the state and regional economy
b. Objective: Analyze market demand and linkages in estimating and expanding the life of public investments in the freight network.
c. Objective: Encourage efforts to provide flexible public funding for freight mobility investments.

These policies and objectives direct the region's planning and investment in the regional freight system. Freight mobility is the movement of goods and services. National and international freight movement contributes significantly to our regional economy, and will likely play an even larger role in the future. The region's relative number of jobs in transportation and wholesale trade exceeds the national average. The regional economy has historically, and continues to be, closely tied to the transportation and

Figure 1.17


METRO
Freight Designations
Main roadway routes
Road connectors
Main railroad lines
Branch railroad lines and spur tracks
(dotted lines represent proposed projects and are not intended to represent specific alignments)
Marine facility
Railroad facility
Air cargo facility
Distribution facility
Truck terminal
Intermodal railyard
Land-use Key
Urban centers
Industry
Neighborhoods
Urban reserves
Rural area
Urban growth boundary
CENTRAL CITY
Vancouver
Portland
Forest Grove
Hillsboro
Beaverton
Tigard
Tualatin
Sherwood
Wilsonville
Lake Oswego
West Linn
Oregon City
Milwaukie
Clackamas
Gresham
Troutdale
Damascus
Boring
Washington Square
Gateway
Columbia River
Willamette River
Clackamas River
Tualatin River
Tualatin Valley Hwy
Cornell Rd
Barnes Rd
Farmington Rd
Beaverton Hillsdale Hwy
Scholls Ferry Rd
Boones Ferry Rd
Stafford Rd
Borland Rd
Lombard St
Burnside St
Powell Blvd
Division St
Foster Rd
Sunnyside Rd
Redland Rd
Springwater Rd
Beavercreek Rd
Henrici Rd
Macadam Ave
McLoughlin Blvd
Murray Blvd
185th Ave
Broadway
Burnside St
Naito Pkwy
MLK Jr Blvd
12th Ave
19th Ave
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W
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Regional Freight System

distribution sectors. This trend is projected to continue. A study of goods movement in the region, the 2040 Commodity Flow analysis, predicts freight volume to more than double by 2040 – a rate higher than projected population growth.

The significant growth in freight projected by the 2040 Commodity Flow Analysis indicates the need to make available adequate land for expansion of intermodal facilities, manufacturing, wholesale and distribution activities, and to continue maintaining and enhancing the freight transportation network. The 2040 Growth Concept identifies industrial sanctuaries for distribution and manufacturing activities. Figure 1.17 identifies the transportation infrastructure and intermodal facilities that serve these land uses and commodities that flow through the region to national and international markets. Main roadway routes connect major activity centers in the region to other areas in Oregon or other states throughout the U.S., Mexico and Canada. Connector roadways connect industrial areas to main roadway routes. Main railroad lines include the Class I railroads while branch railroad lines include shortline or branch lines.

Policy 16.0. Regional Bicycle System
Provide a continuous regional network of safe and convenient bikeways connected to other transportation modes and local bikeway systems, consistent with regional street design guidelines.

a. Objective: Integrate the efforts of the state, counties and cities in the region to develop a convenient, safe, accessible and appealing regional system of bikeways.
b. Objective: Design the regional bikeway system to function as part of the overall transportation system and include appropriate bicycle facilities in all transportation projects.
c. Objective: Integrate multi-use paths with on-street bikeways, consistent with established design standards.
d. Objective: Work with local jurisdictions, ODOT and other public agencies to identify high-frequency bicycle-related crash locations and improvements to address safety concerns in these locations.

Policy 16.1. Regional Bicycle System
Increase the bicycle mode share throughout the region and improve bicycle access to the region's public transportation system.

a. Objective: Promote increased bicycle use for all travel purposes.
b. Objective: Coordinate with Tri-Met to improve bicycle access and parking facilities at existing and future light rail stations, transit centers and park-and-ride locations.
c. Objective: Work with local jurisdictions, ODOT and other public agencies to provide appropriate short and long-term bicycle parking and other end-of-trip facilities at regional activity centers through the use of established design standards.
d. Objective: Develop travel-demand forecasting for bicycle use and integrate with regional transportation planning efforts.

These policies and objectives direct the region's planning and investment in the regional bicycle system. The bicycle is an important component in the region's strategy to provide a multi-modal transportation system. The 2040 Growth Concept focuses growth in the central city and regional centers, station communities, town centers and main streets. One way to meet the region's travel needs is to provide more opportunities to use bicycles for shorter trips.

The regional bikeway system identifies a network of bikeways throughout the region that provide for bicyclist mobility between and accessibility to and within the central city, regional centers and town

centers. A complementary system of on-street and off-street regional bikeway corridors, regional multi-use trails and local bikeways is proposed to provide a continuous network. In addition to major bikeway corridors that create a network of regional through-routes, the system provides accessibility to and within regional and town centers.

Regional bicycle functional classification system

The following are the regional bicycle system functional classification categories as identified in Figure 1.18. These classifications, including regional access bikeways, regional corridor bikeways and community connector bikeways, are on-street bikeways that would be designed using a flexible "toolbox" of bikeway designs, including bike lanes, shoulder bikeways, bicycle boulevards and shared roadway/wide outside lanes. The appropriateness of each design is based on adjacent motor vehicle speeds and volumes. The most appropriate bikeway design is defined in the regional street design concepts.

Regional access bikeway: The function of regional access bikeways is to focus on accessibility to and within the central city, regional centers and some of the larger town centers. Bicyclist travel time to and from activity centers is an important consideration on regional access bikeways. Regional access bikeways generally have higher bicyclist volumes because they serve areas with higher population and employment density.

Regional corridor bikeway: Regional corridor bikeways function as longer routes that provide point-to-point connectivity between the central city, regional centers and larger town centers. Regional corridor bikeways are generally of longer distance than regional access bikeways and community connector bikeways. Regional corridor bikeways generally have higher automobile speeds and volumes than community connector bikeways.

Community connector bikeway: These bikeways connect smaller town centers, main streets, station areas, industrial areas and other regional attractions to the regional bikeway system.

Multi-use paths with bicycle transportation function: Multi-use paths with a bicycle transportation function are connections that are likely to be used by people bicycling to work or school, to access transit or to travel to a store, library or other local destination. Multi-use paths that support both utilitarian and recreational bicycle functions are included as part of the bicycle transportation system.
Bicycle/pedestrian sidewalks on bridges are also included in this functional classification. In terms of design, multi-use paths are physically separated from motor vehicle traffic by open space or a barrier, and are either within the highway right-of-way or within an independent right-of-way. In addition to bicyclists, pedestrians, joggers, skaters and other non-motorized travelers use multi-use paths.

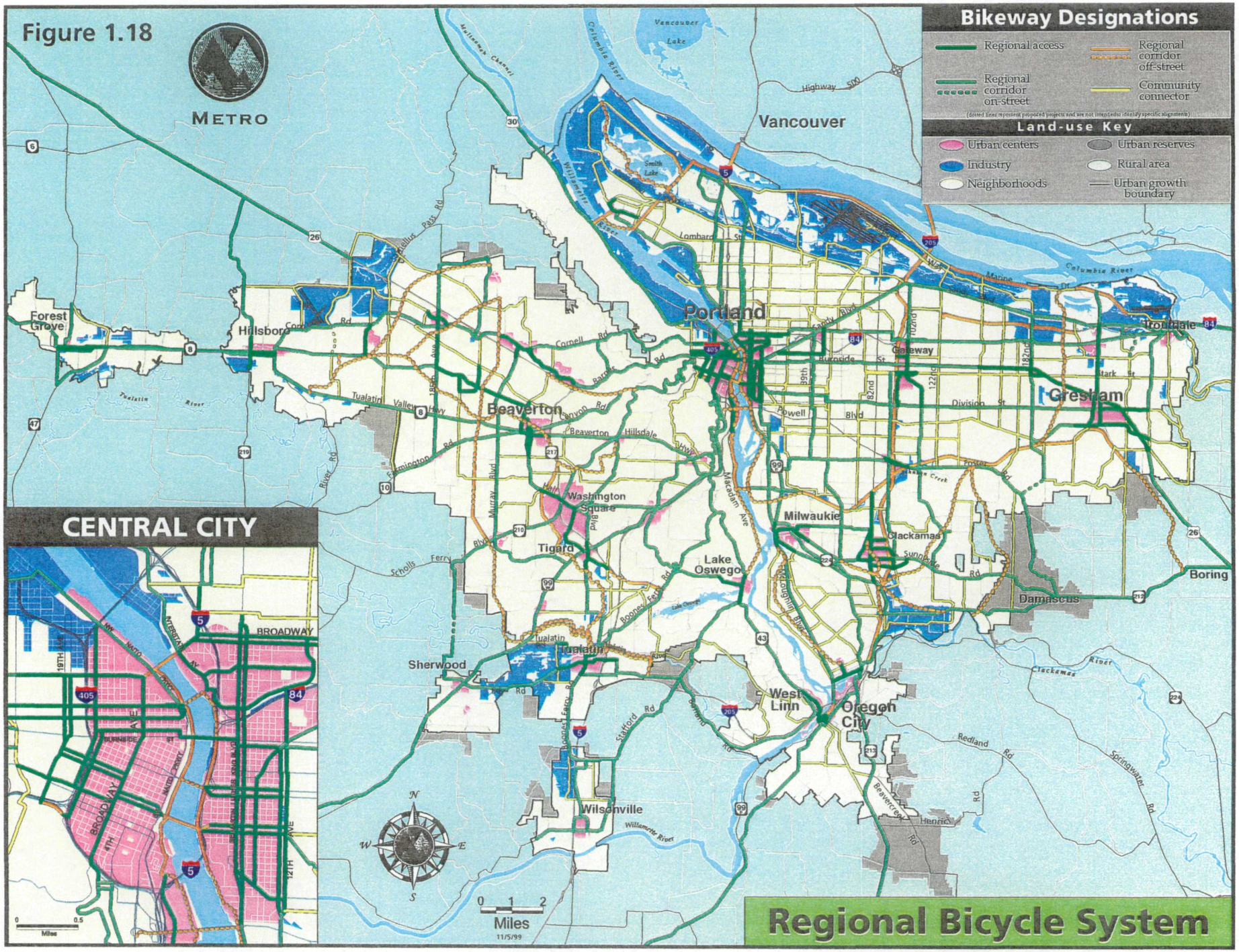
Figure 1.18
METRO
Bikeway Designations
Regional access
Regional corridor off-street
Regional corridor on-street
Community connector
(dotted lines represent proposed projects and are not intended to identify specific alignments)
Land-use Key
Urban centers
Urban reserves
Industry
Rural area
Neighborhoods
Urban growth boundary
CENTRAL CITY
Vancouver
Portland
Gresham
Troutdale
Forest Grove
Hillsboro
Beaverton
Tigard
Lake Oswego
Milwaukie
Clackamas
Damascus
Boring
Sherwood
Tualatin
West Linn
Oregon City
Wilsonville
Columbia River
Willamette River
Clackamas River
Tualatin River
Miles
0 1 2
11/5/99
Regional Bicycle System

Policy 17.0. Regional Pedestrian System
Design the pedestrian environment to be safe, convenient, attractive and accessible for all users.

a. Objective: Work with local, regional and state jurisdictions to complete pedestrian facilities (i.e., sidewalks, street crossings, curb ramps) needed to provide safe and convenient pedestrian access to and within the central city, regional centers, town centers, main streets, corridors and to the region's public transportation system.
b. Objective: Work with local, regional and state jurisdictions to provide landscaping, pedestrian-scale street lighting, benches and shelters affecting the pedestrian and transit user near and within the central city, regional centers, town centers, main streets, corridors and along the regional transit network.

Policy 17.1. Regional Pedestrian System
Increase walking for short trips and improve pedestrian access to the region's public transportation system through pedestrian improvements and changes in land use patterns, designs and densities.

a. Objective: Increase the walk mode share for short trips, including walking to public transportation, near and within the central city, regional centers, town centers, main streets, corridors and LRT station communities.
b. Objective: Work with local, regional and state jurisdictions to improve walkway networks serving transit centers, stations and stops.

Policy 17.2. Regional Pedestrian System
Provide pedestrian access, appropriate to existing and planned land uses, street design classification and public transportation, as a part of all transportation projects.

a. Objective: Among regional pedestrian projects, give funding priority to those projects which are most likely to increase pedestrian travel, improve the quality of the pedestrian system and help complete pedestrian networks near and within the central city, regional centers, town centers, main streets, corridors and LRT station communities.
b. Objective: Integrate pedestrian access needs into planning, programming, design and construction of all transportation projects.

These policies and objectives direct the region's planning and investment in the regional pedestrian system as defined in Figure 1.19. By providing dedicated space for those on foot or using mobility devices, pedestrian facilities are recognized as an important incentive that promotes walking as a mode of travel. Throughout this plan, the term "walking" should be interpreted to include traveling on foot as well as those pedestrians using mobility aids, such as wheelchairs. Walking for short distances is an attractive option for most people when safe and convenient pedestrian facilities are available. Combined with adequate sidewalks and curb ramps, pedestrian elements such as benches, curb extensions, marked street crossings, landscaping and wide planting strips make walking an attractive and convenient mode of travel. The focus of the regional pedestrian system is identifying areas of high, or potentially high, pedestrian activity in order to target infrastructure improvements that can be made with regional funds.

A well-connected high-quality pedestrian environment facilitates walking trips by providing safe and convenient access to pedestrian destinations within a short distance. Public transportation use is enhanced by pedestrian improvements, especially those facilities that connect stations or bus stops to surrounding areas or that provide safe and attractive waiting areas. Improving walkway connections between office and commercial districts and surrounding neighborhoods provides opportunities for

residents to walk to work, shopping or to run personal errands. This reduces the need to bring an automobile to work and enhances public transportation and carpooling as commute options.

Regional pedestrian system functional classification

An integrated pedestrian system supports and links every other element of the regional transportation system and complements the region's land-use goals. The following definitions reflect the regional pedestrian system functional classification categories shown in Figure 1.19.

Pedestrian district: Pedestrian districts are areas of high, or potentially high, pedestrian activity where the region places priority on creating a walkable environment. Specifically, the central city, regional and town centers and light rail station communities are areas planned for the levels of compact mixed-use development served by transit needed to generate substantial walking. These areas are defined as pedestrian districts. Pedestrian districts should be designed to reflect an urban development and design pattern where walking is a safe, convenient and interesting travel mode. These areas will be characterized by buildings oriented to the street and boulevard-type street design features such as wide sidewalks with buffering from adjacent motor vehicle traffic, marked street crossings at all intersections with special crossing amenities at some locations, special lighting, benches, bus shelters, awnings and street trees. All streets within pedestrian districts are important pedestrian connections.

Transit/mixed-use corridor: Transit/mixed-use corridors (referred to only as corridors in the 2040 Growth Concept) are also priority areas for pedestrian improvements. They are located along good-quality transit lines and will be redeveloped at densities that are somewhat more than today. These corridors will generate substantial pedestrian traffic near neighborhood-oriented retail development, schools, parks and bus stops. These corridors should be designed to promote pedestrian travel with such features as wide sidewalks with buffering from adjacent motor vehicle traffic, street crossings at least every 530 feet (unless there are no intersections, bus stops or other pedestrian attractions), special crossing amenities at some locations, special lighting, benches, bus shelters, awnings and street trees. This designation includes multi-modal bridges.

Multi-use path with pedestrian transportation function: These paths are paved off-street regional facilities that accommodate pedestrian and bicycle travel and meet the requirements of the Americans with Disabilities Act. Multi-use paths with a pedestrian transportation function are connections that are likely to be used by people walking to work or school, to access transit or to travel to a store or library. These paths are generally located near or in residential areas or near mixed-use centers. Paths that support purely recreational uses are not considered part of this transportation network, although they are important components of the regional parks and greenspaces map. Pedestrian/bicycle-only bridges also are included in this designation.


Figure 1.19
METRO
Pedestrian Designations
Pedestrian districts (Mixed-use centers) includes urban centers and LRT station communities
Transit/mixed-use corridors
Multi-use facility with pedestrian transportation function
(dotted lines represent proposed projects and are not intended to identify specific alignments)
Land-use Key
Urban centers
Urban reserves
Industry
Rural area
Neighborhoods
Urban growth boundary
CENTRAL CITY
Vancouver
Portland
Gresham
Troutdale
Forest Grove
Hillsboro
Beaverton
Tigard
Tualatin
Sherwood
Lake Oswego
Milwaukie
Clackamas
Damascus
Boring
West Linn
Oregon City
Wilsonville
Columbia River
Willamette River
Tualatin River
Clackamas River
Johnson Creek
Fanno Creek
Beaverton Creek
Cornelius Pass Rd
Cornell Rd
Barnes Rd
Canyon Rd
Tualatin Valley Hwy
Farmington Rd
Scholls Ferry Rd
Murray Blvd
Washington Square
Hall Blvd
Beaverton Hillsdale Hwy
Macadam Ave
McLoughlin Blvd
Boones Ferry Rd
Lombard St
Columbia Blvd
Marine Dr
Sandy Blvd
Burnside St
Powell Blvd
Division St
Foster Rd
Stark St
Sunnyside Rd
Stafford Rd
Borland Rd
Redland Rd
Springwater Rd
Henrici Rd
River Rd
Highway 30
Highway 26
Highway 99W
Highway 43
Highway 213
Highway 224
Highway 212
Interstate 5
Interstate 84
Interstate 205
Interstate 405
BROADWAY
BURNSIDE ST
BROADWAY BRIDGE
BURNSIDE BRIDGE
MORRISON BRIDGE
HAWTHORNE BRIDGE
MARQUAM BRIDGE
FREMONT BRIDGE
STEEL BRIDGE
SE MARTIN LUTHER KING BLVD
SW 10TH AVE
SW 12TH AVE
SW 4TH AVE
SW 1ST AVE
0 1 2
Miles
0 0.5
Miles
11/5/99
Regional Pedestrian System

1.3.6 Managing the Transportation System

Programs that allow the region to better use the existing transportation system benefit all uses of it. System management strategies are divided into two categories – transportation system management (TSM) and transportation demand management (TDM). Each category emphasizes different strategies.

TSM strategies manage the flow of traffic on existing freeways and arterial streets through ramp metering, signal timing, access management, transit priority treatments and other operational-oriented strategies without adding major new infrastructure that is often much more costly. In contrast, TDM strategies manage the flow of traffic on and extend the life cycle of existing facilities by reducing and reshaping the demand for use of these facilities. Most TDM strategies are designed to influence travel choices by providing a reason to choose a means of travel other than driving alone. Other TDM strategies are designed to eliminate the need for certain trips and still others enable people to time their trips outside of peak travel periods.

Implementation of TSM and TDM strategies helps limit the amount of congestion, improve the safety and efficiency of transportation facilities during all times of day and delay the need for major road expansion projects. The following policies and objectives guide regional investments in system management strategies.

Policy 18.0. Transportation System Management
Use transportation system management techniques to optimize performance of the region's transportation systems. Mobility will be emphasized on corridor segments between 2040 Growth Concept primary land-use components. Access and livability will be emphasized within such designations. Selection of appropriate transportation system techniques will be according to the functional classification of corridor segments.

a. Objective: Provide for through travel on major routes that connect central city, regional centers, industrial areas and intermodal facilities.
b. Objective: Implement an integrated, regional advanced traffic management system program that addresses:

- Freeway management (such as ramp meters and automated incident detection or rapid response)
- Arterial signal coordination (such as comprehensive adjustment of signal timing to minimize stop-and-go travel, consistent with adjacent land use, street design type and function, and which coordinates with freeway and interchange operations)
- Transit operation (such as expanded reliance on Tri-Met's computer-aided fleet location and dispatch system and its integration with freeway and arterial management systems, with special emphasis on relaying incident detection data to allow rerouting of buses)
- Multi-modal traveler information services (such as broadcast radio and television; highway advisory radio; variable message signs; on-line road reports; and on-board navigation aids)

c. Objective: Work with local, regional and state jurisdictions to develop access management plans for urban areas that are consistent with regional street design concepts. For rural areas, access management should be consistent with rural reserve and green corridor land-use objectives.
d. Objective: Integrate traffic calming elements into new street design as appropriate consistent with regional street design guidelines, and as a method to optimize regional street system operation without creating excessive local travel on the regional system.
e. Objective: Continue to restripe and/or fund minor reconstruction of existing transportation facilities consistent with regional street design concepts to address roadway safety and operations.

Transportation System Management

These policies and objectives direct the region's planning and investment in transportation system management strategies. Transportation system management techniques are divided into four categories:

Facility design. Facility design techniques address roadway safety and operations with minor roadway reconstruction. Projects might include re-striping travel lane widths, realigning roadways to enhance sight distances and geometry at intersection approaches, channeling of turning movements (e.g., stripping or roadway widening to provide left-turn pockets, right-turn lanes, bus pullouts, etc.), improved signage of cross streets and activity centers and signalization control and phasing adjustment.

Access management. Access management techniques reduce opportunities for conflict between through-movements and vehicles turning off and onto the roadway. They also reduce conflict between motor vehicles, pedestrians and bicycles. Examples include closing and/or consolidating commercial driveways, minimizing connection of local streets to regionally significant arterial streets and selectively prohibiting left turn and U-turn movements at and between intersections.

Traffic calming. Traditionally, traffic calming techniques have been applied to existing neighborhood streets and collectors to protect them from intrusion of through-traffic seeking to avoid congested major facilities during peak periods and high-speed traffic at all hours. These "retrofit" techniques include speed bumps, traffic-rounds and traffic barriers, and have not been typically used on larger regional facilities. They are, however, critical design elements that address secondary local effects of the regional system and operational policies promoted in this plan.

Other traffic calming techniques are reflected in the design of streets serving pedestrian-oriented land uses. These include narrowed travel lanes, wider sidewalks, curb extensions, planted median strips and other features designed to unobtrusively reduce motor vehicle speeds and buffer pedestrians from the myriad effects of adjacent motor vehicle movements.

Advanced traffic management system (ATMS). ATMS refers to proven traffic management techniques that use computer processing and communications technologies to optimize performance of multi-modal roadway and public transportation systems. A mature ATMS system will integrate freeway, arterial and public transportation management systems. A blueprint of the region's planned ATMS system is described in the ODOT/FHWA-sponsored Portland-area ATMS plan published in 1993. The ATMS Plan recognizes the relationship between high-speed, limited access through-routes and the parallel system of regional and local minor arterials and collectors, and how they interact with one another. ATMS provides techniques and management systems to facilitate region-wide auto, truck and transit vehicle mobility (i.e., ATMS prioritizes longer trips on freeway and arterial through-routes). ATMS systems also manage "short-trip" facilities that emphasize access to commercial/residential uses. Most important, the ATMS plan emphasizes the importance of fully integrating through-route and local-system traffic management for optimum performance of the region's roadways.

Policy 19.0. Regional Transportation Demand Management
Enhance mobility and support the use of alternative transportation modes by improving regional accessibility to public transportation, carpooling, telecommuting, bicycling and walking options.

a. Objective: Promote programs that reduce the number of people driving alone and dependence on the automobile.
b. Objective: Promote transit-supportive design and infrastructure in 2040 Growth Concept central city, regional centers, town centers, station communities, main streets and along designated transit corridors.
c. Objective: Establish an alternative mode split target for each 2040 Design Type, consistent with Table 1.2.
d. Objective: Promote the establishment of transportation management associations (TMAs) in the central city, regional centers, industrial areas and intermodal facilities, town centers and employment centers.
e. Objectives: Promote private and public sector programs and services that encourage employees to change commuting patterns, such as telecommuting, flexible work hours and/or compressed work weeks.
f. Objective: Investigate the use of HOV lanes to improve system reliability and reduce roadway congestion.

Policy 19.1. Regional Parking Management
Manage and optimize the efficient use of public and commercial parking in the central city, regional centers, town centers, main streets and employment centers to support the 2040 Growth Concept and related RTP policies and objectives.

a. Objective: Establish minimum and maximum parking ratios to help the region manage the number of off-street parking spaces in the region.
b. Objective: Support local adoption of parking management plans within the central city, regional centers, town centers, main streets and employment centers.
c. Objective: Promote the use and development of shared parking spaces for commercial and retail land uses.
d. Objective: Implement appropriate parking ratios and investigate implementation of other measures throughout the region that reduce the demand for parking or lead to more efficient parking design options.
e. Objective: Encourage the designation of preferential parking stalls for carpool, vanpool, motorcycle, bicycle and moped parking at major retail centers, institutions and employment centers.
f. Objective: Conduct further study of market-based strategies such as parking pricing and employer-based parking-cash outs and restructuring parking rates.

Policy 19.2 Peak Period Pricing
Manage and optimize the use of highways in the region to reduce congestion, improve mobility and maintain accessibility within limited financial resources.

a. Objective: Apply peak period pricing appropriately to manage congestion and generate revenues to help with needed transportation improvements.
b. Objective: Consider peak period pricing as a feasible option when major, new highway capacity is being added to the regional motor vehicle system. Do not price existing roadways at this time. Circumstances where peak period pricing may be appropriate are:
   - when one or more lanes are being added to a currently congested highway, peak period pricing for a stretch of several miles should be considered
   - where a major new highway facility is being constructed where none exists now to provide congestion relief in the corridor, peak period pricing of all lanes should be considered
   - where a major facility (bridge or highway) is undergoing reconstruction and significant capacity is being added, pricing of one or all lanes should be considered.
c. Objective: Identify at least one specific project for which peak period pricing is appropriate to serve as a pilot within two years using the criteria used in *Working Paper 9* of the Traffic Relief Options study.
d. Objective: Pursue Value Pricing Pilot Program funds from FHWA for development of detailed implementation plans and/or administration of pilot projects.

Transportation demand management

These policies and objectives direct the region's planning and investment in the regional transportation demand management program (TDM) and support investment in the regional bicycle, pedestrian and public transportation systems. The regional TDM program is operated by Tri-Met with oversight by Metro through the TDM subcommittee, a TPAC subcommittee. The regional TDM program combines regional and local efforts and works cooperatively with employers in the region to provide alternatives to driving alone during rush hour. The transportation demand management policies and objectives respond to the federal Clean Air Act requirements of 1990, the state Transportation Planning Rule and the state Employee Commute Options Rule.

Regional transportation demand management program. The regional TDM program includes strategies that promote shared ride and the use of transit, walking, biking, work schedule changes and telecommuting, especially during the most congested times of the day. Providing options to driving alone allow commuters to eliminate trips or switch to another mode of travel that maximizes the efficiency of our transportation system and can result in improved air quality. This benefits all residents of this region by allowing the region to be more strategic in the timing and extent of expansion of the regional motor vehicle system.

Alternative mode share targets established in Table 1.2 are intended to be goals for cities and counties to work toward as they implement the 2040 Growth Concept at the local level. They may also serve as performance measures in Areas of Special Concern. Improvement in non-single-occupancy vehicle mode share will be used to demonstrate compliance with per capita travel reductions required by the state Transportation Planning Rule. The most urbanized areas of the region will achieve higher non-single-occupancy vehicle mode shares than less developed areas closer to the urban growth boundary. See Section 6.4.6 in Chapter 6 of this plan for more detail.

Table 1.2

Regional Non-SOV Mode Split Targets

(for trips to and within each 2040 Design Type)

needed to achieve Oregon Transportation Planning Rule

10 percent VMT/capita reduction requirement

2040 Design Type	Non-SOV Mode Split Target
Central city	60-70%
Regional centers, town centers, main streets, station communities and corridors	45-55%
Industrial areas and intermodal facilities, employment areas and inner and outer neighborhoods	40-45%

Source: Metro

Parking management. Policies and objectives related to parking management are intended to assist local jurisdictions with implementation of the state Department of Environmental Quality's voluntary parking ratio program contained in the region's ozone maintenance plan. As non-auto modes of travel are used more for work and non-work trips, the demand for parking decreases. The reduction in demand for parking will allow the region to use our land supply more efficiently, providing opportunities to redevelop existing parking into other more important uses.

Peak period pricing. Policies and objectives related to peak period pricing are intended to guide the evaluation of peak period pricing as an option to consider when major, new highway capacity is added to the regional motor vehicle system. Peak period pricing involves the application of market pricing (through variable tolls) to use of congested roadways at times of peak usage. Peak period pricing has been successful in other parts of the US and internationally at managing peak use on limited roadway infrastructure by providing an incentive for drivers to select other modes, routes, destinations or times of day. Those drivers who choose to pay the toll can benefit from significant time savings. Peak period pricing is the only demand management tool that is location and time of day specific, making it uniquely effective in reducing congestion and improving mobility while limiting vehicle miles traveled and the need for new roads.

1.3.7 Implementing the transportation system

While the primary mission of this plan is to implement the 2040 Growth Concept, the plan must also address other important transportation needs that may not directly assist in implementing the growth concept. This plan must also protect the region's existing transportation investments by placing a high priority on projects or programs that maintain or preserve our existing infrastructure. The purpose of this section is to establish key issues as the most important criteria when selecting transportation projects and programs. The following policies and objectives identify these issues.

Policy 20.0. Transportation Funding
Ensure that the allocation of fiscal resources is driven by both land use and transportation benefits.
a. Objective: Maintain and preserve the existing transportation infrastructure.
b. Objective: Improve the efficiency of the existing transportation system.
c. Objective: Consider a full range of costs and benefits in the allocation of transportation funds.
d. Objective: Use funding flexibility to the degree necessary to implement the adopted Regional Transportation Plan.
e. Objective: Establish a set of criteria for project selection based on the full range of policies in this plan and fund projects in accordance with those selection criteria.
f. Objective: Develop a transportation system necessary to implement planned land uses, consistent with the regional performance measures.

Policy 20.1. 2040 Growth Concept Implementation
Implement a regional transportation system that supports the 2040 Growth Concept through the selection of complementary transportation projects and programs.
a. Objective: Place the highest priority on projects and programs that best serve the transportation needs of the central city, regional centers, intermodal facilities and industrial areas.
b. Objective: Place a high priority on projects and programs that best serve the transportation needs of station communities, town centers, main streets and corridors.
c. Objective: Place less priority on transportation projects and programs that serve the remaining components of the 2040 Growth Concept.
d. Objective: Emphasize projects and programs that provide or help promote a wider range of transportation choices.

Policy 20.2. Transportation System Maintenance and Preservation
Emphasize the maintenance, preservation and effective use of transportation infrastructure in the selection of the RTP projects and programs.
a. Objective: Place the highest priority on projects and programs that preserve or maintain the region's transportation infrastructure.
b. Objective: Place less priority on projects and programs that modernize or expand the region's transportation infrastructure.

Policy 20.3. Transportation Safety
Anticipate and address system deficiencies that threaten the safety of the traveling public in the implementation of the RTP.
a. Objective: Place the highest priority on projects and programs that address safety-related deficiencies in the region's transportation infrastructure.
b. Objective: Place less priority on projects and programs that address other deficiencies in the region's transportation infrastructure.

These policies and objectives direct the region's planning and investment in the regional transportation system. The 2040 Growth Concept has established a broad regional vision that will guide all future comprehensive planning at the local and regional levels, including development of the Regional Transportation Plan. The 2040 Growth Concept contains a series of land-use building blocks that establish basic design types for the region. Of these, the central city, regional center and industrial area/intermodal facility components are most critical in terms of regional significance and their role in supporting implementation of the other growth concept design types. Substantial public and private investment will be needed in these areas over the long-term to realize the 2040 Growth Concept vision. These areas provide the best opportunity for public policy to shape development, and are, therefore, the best candidates for more immediate transportation system improvements.

During the past several years, the region has experienced unprecedented growth – a trend that is predicted to continue in the 2020 population and employment forecast. Subsequently, a significant amount of urbanization is likely to occur while local jurisdictions are in the process of adopting local ordinances that implement the 2040 Growth Concept. Therefore, the phasing of RTP projects and programs will reflect this period of transition, with project identification and selection increasingly tied to implementation of the 2040 Growth Concept.

The RTP includes two implementation scenarios based on varying financial assumptions. The "preferred" system (Chapter 3) includes an optimal package of regional transportation projects and programs that best addresses the region's needs during the 20-year plan period. The "strategic" system (Chapter 5) includes a mix of regional projects and programs that represents the minimum set of actions needed to keep pace with expected growth during the next 20 years. The strategic system identifies more improvements than the region can afford, given expected revenue for the plan period, and thus establishes a target for additional funding.